PB87-201935

Guidance for the Reregistration of Pesticide Products Containing Trifluralin as the Active Ingredient

(U.S.) Environmental Protection Agency
Washington, DC

Apr 87

U.S. Department of Commerce
National Technical Information Service
NTIS

PB87-201935

United States
Environmental Protection
Agency

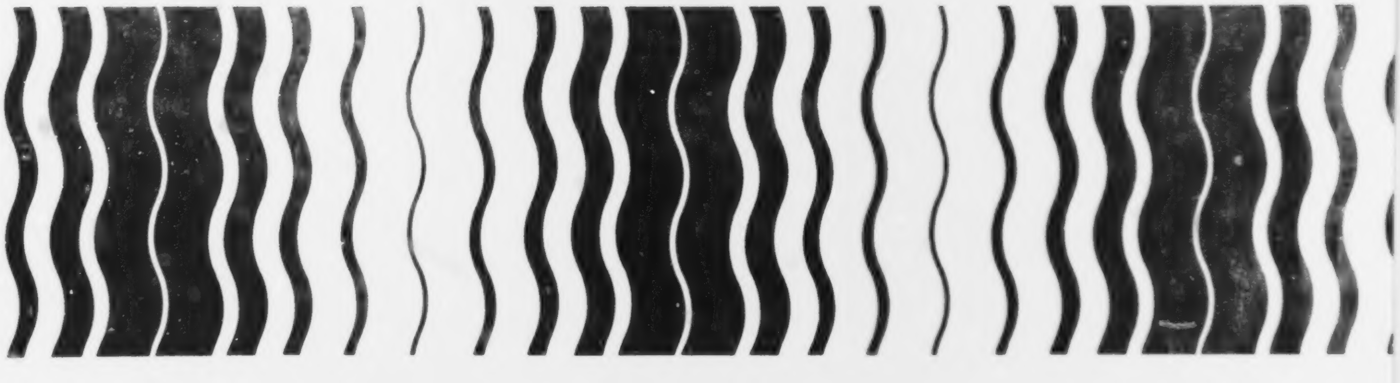
Office of
Pesticides and Toxic Substances
Washington DC 20480

April 1987

Pesticides

EPA

Guidance for the Reregistration of Pesticide Products Containing TRIFLURALIN as the Active Ingredient



REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA 22161

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO.

2.

3. Recipient's Accession No. PB87-201935/AS

4. Title and Subtitle

Guidance for the Registration of Pesticide Products Containing TRIFLURALIN as the Active Ingredient.

5. Report Date Issued APRIL 1987

6.

7. Author(s) EPA, Office of Pesticide Programs, Registration Division

8. Performing Organization Rept. No. 540/RS-87-195

9. Performing Organization Name and Address

US Environmental Protection Agency
Office of Pesticide Programs
Registration Division TS-767C
401 M Street, SW
Washington, DC 20460

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.

(C)

(G)

12. Sponsoring Organization Name and Address

Same as #9

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains information regarding the registration of pesticide products containing the subject active ingredient. The document includes how to register under a registration standard, regulatory position and rationale, and summaries of data requirements and data gaps. Also included is a bibliography containing citations of all studies reviewed by EPA in arriving at the positions and conclusions contained in the standard.

17. Document Analysis a. Descriptors

Pesticides, standards, regulations, manufacturing, chemistry, toxicology, residues, ecology, path of pollutants.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement: Publicly Available

19. Security Class (This Report) Unclassified

20. Security Class (This Page) Unclassified

21. No. of Pages 296

22. Price

(See ANSI-Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

GUIDANCE FOR THE REREGISTRATION OF PESTICIDE PRODUCTS

CONTAINING
TRIFLURALIN

AS THE ACTIVE INGREDIENT

CASE NUMBER: 0179

CAS NUMBER: 1582-09-8

April 1987

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDE PROGRAMS

WASHINGTON, D. C. 20460

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I. INTRODUCTION

The Registration Standards Program

EPA has established the Registration Standards program in order to provide an orderly mechanism by which pesticide products containing the same active ingredient can be reviewed and standards set for compliance with FIFRA. The standards are applicable to reregistration and future applications for registration of products containing the same active ingredient. Each registrant of a product containing an active ingredient subject to this Standard who wishes to continue to sell or distribute that product must bring his product and labeling into compliance with FIFRA, as instructed by this Standard. Pesticides have been grouped into use clusters and will be reviewed on the basis of a ranking scheme giving higher priority to (1) pesticides in clusters used on food and feed crops; and (2) pesticides produced in large volumes.

The Registration Standards program involves a thorough review of the scientific data base underlying a pesticide's registration. The purpose of the Agency's review is to reassess the potential hazards arising from the currently registered uses of the pesticide; to determine the need for additional data on health and environmental effects; and to determine whether the pesticide meets the "no unreasonable adverse effects" criteria of FIFRA. In its review EPA identifies:

1. Studies that are acceptable to support the data requirements for the currently registered uses of the pesticide.

2. Additional studies necessary to support continued registration. The additional studies may not have been required when the product was initially registered or may be needed to replace studies that are now considered inadequate.

3. Labeling revisions needed to ensure that the product is not misbranded and that the labeling is adequate to protect man and the environment.

The detailed scientific review, which is not contained in this document, but is available upon request, focuses on the pesticide active ingredient. The scientific review primarily discusses the Agency's evaluation of and conclusions from available data in its files pertaining to the pesticide active ingredient. However, during the review of these data the Agency is also looking for potential hazards that may be associated with the end use products that contain the active ingredient. The Agency will apply the provisions of this Registration Standard to end use products if necessary to protect man and the environment.

EPA's reassessment results in the development of a regulatory position, contained in this Registration Standard, on the pesticide and each of its registered uses. See Section IV - Regulatory Position and Rationale. Based on its regulatory position, the Agency may prescribe a variety of steps to be taken by registrants to maintain their registrations in compliance with FIFRA. These steps may include:

1. Submission of data in support of product registration;

2. Modification of product labels;

3. Modifications to the manufacturing process of the pesticide to reduce the levels of impurities or contaminants;

4. Restriction of the use of the pesticide to certified applicators or other specially trained individuals;

5. Modification of uses or formulation types; or

6. Specification of packaging limitations.

Failure to comply with these requirements may result in the issuance of a Notice of Intent to Cancel or a Notice of Intent to Suspend (in the case of failure to submit data).

In addition, in cases in which hazards to man or the environment are identified, the Agency may initiate a special review of the pesticide in accordance with 40 CFR Part 154 to examine in depth the risks and benefits of use of the pesticide. If the Agency determines that the risks of the pesticide's use outweigh the benefits of use, the Agency may propose additional regulatory actions, such as cancellation of uses of the pesticide which have been determined to cause unreasonable adverse effects on the environment.

EPA has authority under the Data Call-In (DCI) provisions of FIFRA sec. 3(c)(2)(B) to require that registrants submit data to answer our questions regarding the chemical, toxicological, and environmental characteristics and fate of a pesticide. This Registration Standard lists the data EPA believes are necessary to resolve our concerns about this pesticide. These data are listed in the Tables A and B in Appendix I. Failure to comply with the DCI requirements enumerated in this Registration Standard may result in issuance by EPA of a Notice of Intent to Suspend the affected product registrations.

Registrants are reminded that FIFRA sec. 6(a)(2) requires them to submit factual information concerning possible unreasonable adverse effects of a pesticide at any time that they become aware of such information. You should notify the Agency of any information, including interim or preliminary results of studies, if those results suggest possible adverse effects on man or the environment. This requirement continues as long as your products are registered by the Agency.

II. CHEMICAL COVERED BY THIS STANDARD

A. Description of the chemical

The following chemical is covered by this Registration Standard.

Common Name: trifluralin
Chemical Name: alpha,alpha,alpha-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine
Empirical Formula: $C_{13}H_{16}F_3N_3O_4$
Chemical Abstracts Service (CAS) Number: 1582-09-8
OPP(Shaughnessy) Number: 036101
Trade Names: Treflan, L-36352, Crisalin, Su Seguro Carpidor, Trefanocide, Treficon, TR-10, Triflurex, Trim, Ipersan, Sinflouran, Ipifluor
Physical Characteristics: Yellowish-orange crystalline solid at room temperature; no appreciable odor
Molecular weight -- 335.3
Melting point -- 42.0 to 49.0 °C
Solubility at 25 °C -- >50 grams (g)/100 ml in acetone, 81 (g)/100 ml in xylene, 0.00003 (g)/100 ml (0.3ppm) in water
Vapor pressure -- 1.1×10^{-4} mm Hg at 25° C
Stable to hydrolysis at pH 3, 6, and 9

B. Use Profile

Trifluralin is a selective preemergent herbicide registered for the control of annual grasses and certain broadleaf weeds. Trifluralin's mode of activity involves inhibition of root and shoot growth when absorbed by the roots of germinating plants; it does not directly inhibit seed germination. Trifluralin was first registered in 1963 and is available as a 94.5, 95, 96, and 98 percent active ingredient technical product and as a 20, 44.5, and 46 percent active ingredient formulation intermediate for formulating trifluralin end-use products. Trifluralin is formulated as a granular, wettable powder, emulsifiable concentrate, and a pressurized dust. The emulsifiable concentrate is the most widely used formulation. Registered trifluralin products are formulated with trifluralin as the sole active ingredient, in combination with other active ingredients, with fertilizers, or with both.

The major agricultural uses of trifluralin are for preemergent weed control in the production of soybeans and cotton and various vegetable crops. The chemical is also registered for use after planting on ornamental trees and shrubs, roses and other flowers, and fruit and nut trees. In addition, trifluralin is registered for various nonagricultural sites, such as rights-of-way, domestic outdoor and industrial sites. Of the total amount of trifluralin applied in the United States, approximately 65 percent is applied to soybeans, 19 percent to cotton, 8 percent to sunflowers, 4 percent to wheat and the remaining 6 percent to vegetable crops, dried peas, beans and nonagricultural sites. Application rates for terrestrial food crops and ornamental plants range from 0.25 to 4.0 pounds active ingredient per acre depending upon soil texture, average rainfall, and weed species. Application rates range from 0.5 to 16 pounds active ingredient per acre for terrestrial noncrop uses.

Trifluralin is applied by low pressure ground spraying equipment, subsurface layering equipment, irrigation systems and in a few instances by aerial equipment. Soil incorporation within 24 hours after application is recommended for most uses of trifluralin. For some products, surface application followed by irrigation is recommended.

The Elanco Products Division of Eli Lilly & Company is the domestic producer of trifluralin. Foreign producers of trifluralin are Industria Prodotti Chimici S.p.A. of Italy, Makhteshim-Agan of Israel, and Agrotran of Guatemala.

C. History of Significant Regulatory Actions

On August 30, 1979, the Agency initiated a Special Review (formerly known as Rebuttable Presumption Against Registration) of all pesticide products containing trifluralin (44 FR 50911). The Agency had determined that a contaminant of trifluralin belonging to the N-nitrosamine chemical class, N-nitroso-di-n-propylamine (NDPA), met the oncogenic risk criterion set forth in 40 CFR 162.11. (The Special Review risk criteria and procedures have been revised and are now found in 40 CFR 154.) Simultaneously, the Agency issued a Notice of Preliminary Determination which set forth regulatory options for addressing the risks of exposure to trifluralin's N-nitrosamine contaminant.*

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*The Special Review process is typically conducted in steps beginning with issuance of a Notice of Intent to Initiate a Special Review (Position Document [PD] 1) which solicits comments and information on the identified risks and the economic, social and environmental benefits of the pesticide's use. After this step, the Agency evaluates the risks and benefits and proposes a regulatory position in a second position document (PD 2/3). In the case of trifluralin, these steps were combined because the Agency had already collected sufficient information to make an immediate risk/benefit determination.

In its PD 1/2/3, the Agency proposed to cancel the registrations of products containing trifluralin unless registrants instituted quality control measures in the manufacturing process to reduce N-nitrosamine contamination levels to no greater than 1 part per million (ppm). The Agency proposed that registrants modify labeling of their products to reflect less than 1 part per million (ppm) N-nitrosamine contamination. In addition, the Agency proposed that the registrants would need to perform additional testing of trifluralin for reproductive effects, teratogenicity, and mutagenicity (including heritable spindle effects). When the PD 1/2/3 was issued, the principal registrant, Elanco Products Company, had already instituted manufacturing methods to reduce the NDPA contamination level to less than 1 ppm NDPA, and was also conducting a chronic feeding study to assess oncogenic effects due to administration of trifluralin with an NDPA concentration of less than 0.01 ppm, the limit of detection.

Following issuance of the PD 1/2/3, the registrant submitted both comments on the Agency's risk assessments and the results of its trifluralin chronic feeding study. This study indicated that high doses of trifluralin, with NDPA levels less than 0.01 ppm, are associated with a statistically significant increase in tumors of the kidney, bladder, and thyroid of rats when compared to controls. As a result of the registrant's comments and the review of the chronic feeding study, the Agency recalculated and reevaluated the dietary and worker exposure to nitrosamines and trifluralin and the oncogenic risks associated with these exposures. The Agency determined that the estimated overall risks associated with exposure to trifluralin itself, or to the NDPA impurity in tifluralin at the allowable level, were not unreasonable. A PD 4 was issued in July 1982 (47 FR 33777)* stating that the benefits of trifluralin outweighed the identified risks and that registrants of products containing trifluralin could maintain their registrations under the following conditions:

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*Both the PD 1/2/3 and the PD 4 are available from the Agency upon request.

a. All registrants of technical trifluralin (present and future) must submit Confidential Statements of Formula (CSF) that reflect a total N-nitrosamine concentration of no greater than 0.5 ppm. The registrants must also advise the Agency of the quality control procedures instituted to assure that the level of total N-nitrosamine stated on the CSF is not exceeded. In addition, registrants must maintain accurate quality control records on these products and make such records available to the Agency on demand.*

b. Registrants must perform mutagenicity testing on trifluralin, including an assessment of whether trifluralin has the capacity to disrupt formation or function of the spindle apparatus in dividing cells.*

c. Registrants must perform testing of trifluralin for reproductive and teratogenic effects.*

d. Registrants must conduct a field monitoring study to assess potential toxic effects to aquatic organisms, since, in light of new data and a reevaluation of existing information, the Agency determined that trifluralin could reach aquatic environments through soil runoff and, because of bioconcentration abilities, could be harmful to fish and mollusks.*

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*These requirements have since been complied with. Appropriate information or studies have been submitted to the Agency with the exception of the study to assess the effects on spindle cells, for which the Agency, in cooperation with mutagenicity testing experts, is attempting to develop a suitable protocol.

III. AGENCY ASSESSMENT

Summary

The Agency has reviewed, to the extent practicable, the existing data base submitted in support of the registration of trifluralin. A largely complete set of toxicity studies, including long-term chronic feeding and oncogenicity data, were submitted to the Agency at a time that was too late for full reviews to have been completed and subsequently included in the Standard. These data therefore have not been included in the Bibliography to this Standard, but may be cited to support registration of products containing trifluralin, subject to possible questions about their validity. The data which have been fully reviewed are included in the Bibliography to this Registration Standard and may therefore be cited to support the registration of any of the currently registered trifluralin products without questions as to the Agency's present view regarding their validity. A partial list of those studies not yet reviewed may be found in an addendum to the Bibliography. Based on the the review of the data described in the Bibliography, the Agency has reached the following conclusions.

(1) Trifluralin poses a limited oncogenic risk from dietary and worker exposure. The pesticide is classified as a Category C (possible human) carcinogen based on the following:

  (a) Trifluralin was associated with an increased incidence of malignant tumors of the renal pelvis of the kidney and thyroid gland of male rats, which was statistically significant at the highest dosage administered. A statistically significant increase in the incidence of combined malignant and benign urinary bladder tumors also was observed in female rats at the high dose.

  (b) Structural analogs of trifluralin have been reported to cause similar effects in rodents.

(2) At present, the Agency's view is that trifluralin's benefits are not outweighed by its risks.*

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*The known risks of exposure to trifluralin are discussed in this assessment. A detailed quantitative benefits analysis was completed for the trifluralin PD 1/2/3, and may be found in Part III of that document.

As a result of this review, the Agency has identified missing data needed to evaluate the environmental and human health risks associated with the use of trifluralin. These data must be developed in order to maintain registrations of products or register new products containing trifluralin. The following summarizes the data gaps, including product chemistry information. Please note that this is only a summary; more details can be obtained by referring to Table A of the Data Appendices.

SUMMARY OF DATA GAPS -- TRIFLURALIN

Product Chemistry

- Product Identity
- Analysis and Certification of Product Ingredients
- Physical and Chemical Characteristics

Residue Chemistry

- Metabolism -- plant and animal
- Storage Stability
- Magnitude of Residues for Various Commodities

Environmental Fate

- Photodegration
- Metabolism - lab
- Mobility
- Dissipation - field
- Accumulation

Toxicology

- Repeated Dose Study in rodents (to identify NOEL for nephrotoxic effects)
- General Metabolism
- Dermal Penetration

Wildlife and Aquatic Organisms

- Acute Toxicity to Estuarine and Marine Organisms

The Agency has also determined that label revisions must be made in the following areas:

°Environmental hazards
°Irrigation water restrictions
°Hazards to children and domestic animals

Section C of this Part of this Registration Standard contains a discussion of the Agency's review which resulted in these determinations. Part II of the Registration Standard contains the required wording for the labeling revisions.

Preliminary Risk Assessment

To assess the risks associated with trifluralin, the Agency reviewed the existing data base.* This included the review of studies conducted for oncogenicity, mutagenicity, teratogenicity, reproductive effects, and metabolism. Based on these studies, risks from dietary exposure and worker exposure have been evaluated. It should be noted that these risk estimates were originally calculated in the early 1980's when trifluralin was undergoing a Special Review because trifluralin products contained potentially significant carcinogenic N-nitrosamine contaminants. As discussed in Part II, C. of the Registration Standard, the total N-nitrosamine contaminant level in technical trifluralin has been reduced to levels no greater than 0.5 parts per million (ppm). These levels are not of toxicological significance in evaluating the risks of exposure to trifluralin. This preliminary assessment therefore focuses on effects observed from exposure to trifluralin itself. (The only exception is the dietary risk which was estimated taking exposure to both trifluralin and N-nitrosamines into account.) The following is a summary of the risk assessment.

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*With the exception of the studies listed in the addendum to the Bibliography.

(1) Oncogenicity Studies

Rat Studies In its evaluation of trifluralin the Agency reviewed three rat oncogenicity studies.

(a) No oncogenic effects were observed in a study (Eli Lilly, 1966) with Sprague-Dawley rats administered 0, 200, 1000, or 2000 ppm trifluralin in the diet for two years. The NDPA (N-nitroso-di-n-propylamine) content of the test substance is unknown. The Agency's Carcinogen Assessment Group (CAG) determined that this study was adequate to perform a safety evaluation.

(b) In a 1978 study conducted by the National Cancer Institute (NCI), Osborne Mendel rats were fed 0, 3250, or 6500 ppm trifluralin for 78 weeks, followed by observation for an additional 33 weeks on a control diet. It was determined that the trifluralin technical used in this study was contaminated with a N-nitrosamine (NDPA) at levels large enough (84-88 ppm) to render interpretation of compound-related effects equivocal. Neoplasms of the kidney, urinary bladder, and thyroid, as well as chronic inflammation of the kidneys, were observed in this study. The urinary tract tumors occurred in the control group with a frequency similar or greater to that demonstrated in the dosed groups. However, due to the small number of rats in the treated groups actually examined (only 11 - 12 out of 50 test animals), it is not possible to make valid comparisons between the two groups. The data on thyroid tumors were determined to be equivocal and failed to demonstrate any possible dose-related effect. In summary, the Agency determined that this study was not adequate to demonstrate the oncogenicity of trifluralin, and therefore not adequate for regulatory purposes.

(c) Fischer 344 rats were administered trifluralin in the diet for two years at concentrations of 0, 813, 3250, and 6500 ppm (Eli Lilly, 1980). The amount of NDPA contaminant present in the trifluralin was determined to be less than 0.01 ppm. Results of this study showed that trifluralin produced elevated incidences of:

°malignant neoplasms of the renal pelvis of the kidney in all male dose groups, but statistically significant at the high dose level only ($p<0.05$);

°combined benign and malignant neoplasms of the bladder in in the mid and high dose females, again statistically significant at the high dose level only ($p<0.05$);

The following table summarizes the number of tumor-bearing animals for each tumor type:

Tumors of the Transitional Epithelium of the Urinary Tract

Dose (ppm)	0		813		3250		6500	
Sex	M	F	M	F	M	F	M	F
Number of rats	60	60	59	60	60	60	60	60
Papilloma of the bladder	0	0	1	0	1	1	1	3
Carcinoma of the bladder	0	0	0	0	0	0	0	2
Carcinoma of the renal pelvis	0	0	2	0	3	0	6	0
	0	0	3	0	4	1	7	5

Note: Urinary bladder hyperplasia was looked for histologically but, with the exception of the renal pelvis, there was no compound related increase in incidence. In fact, there was minimal response in all groups.

°In addition to the urinary tract tumors, there was an increase in follicular cell adenomas and carcinomas of the thyroid, which were significant at the high dose in males ($p<0.05$). There was no significant increase or dose-related trend for females. The following table summarizes the number of tumor-bearing animals for each tumor type:

Follicular Cell Neoplasms of the Thyroid

Dose (ppm)	0		813		3250		6500	
Sex	M	F	M	F	M	F	M	F
Number of rats	60	60	59	60	59	60	60	60
Follicular Adenoma	1	0	0	1	3	0	10	1
Foll. Papillary Ad.	2	0	0	0	2	0	0	1
Foll. Cystadenoma	0	0	0	0	0	0	2	0
Foll. Carcinoma	2	0	1	0	3	1	1	1
	5	0	1	1	8	1	13	3

For this study, the Agency also examined the effects of ingestion of the compound on general health, survival, weight gain, food consumption, and efficiency of food utilization. There were no observed treatment-related effects on appearance or behavior throughout the study, except that body weight gain was reduced at the two highest doses. (Survival was generally unaffected by treatment except for high dose females at 24 months.)

Mouse Studies In its evaluation of trifluralin, the Agency considered two mouse studies.

(a) B6C3F1 mice were fed trifluralin in the diet at dosages of 0, 2375, and 5000 ppm for 78 weeks, followed by 12 weeks observation on a control diet (NCI, 1978). In the female mice, a statistically significant increase occurred in hepatocellular carcinomas (12/47 and 21/44 at the mid and high dose respectively), and lung adenomas (6/43 and 3/30 at the mid and high dose respectively).

Squamous cell carcinomas of the forestomach were also observed in female mice at both dosage levels (4/45 and 1/44), but were not statistically significant when compared to controls. However, because these tumors are quite rare, (the historical background was 0/1985), NCI considered the squamous cell carcinoma of the stomach was a biologically significant finding and therefore supplementary evidence of the oncogenic potential of trifluralin. No tumors were observed in the male mice.

It was determined that the N-nitrosamine (NDPA) content of the technical trifluralin used in this study exceeded 80 ppm (the contamination level could have been significantly higher because the test substance was not sampled until three years after completion of the study). After reviewing NDPA carcinogenicity studies which resulted in compound-related tumors of the same type, the Agency concluded that the elevated incidence of hepatocellular carcinomas in the female mice was due principally to exposure to the N-nitrosamine contaminant. The Agency could not establish with any certainty whether the other tumor types may have been caused by the contaminant. This study was therefore determined to be insufficient for regulatory purposes.

(b) In 1980, Eli Lilly repeated an oncogenicity study using B6C3F1 mice with trifluralin containing NDPA at levels unlikely to produce a tumorigenic response (less than 1 ppm). In this two-year study, the mice were fed trifluralin in the diet at concentrations of 0, 563, 2250, and 4500 ppm. This study was negative for oncogenic effects from trifluralin, and determined to be adequate for regulatory purposes.

Other Data

Structure-Activity Correlations Trifluralin is a dinitroaniline compound closely related to two other pesticide active ingredients, profluralin and ethalfluralin. Although profluralin is no longer manufactured, available data submitted to the Agency demonstrated that profluralin in subchronic feeding studies in rats and dogs demonstrated increased relative liver and thyroid weights and numerous adverse effects on the kidney.

Ethalfluralin demonstrated an oncogenic potential at $\geq$250 ppm when tested in Fischer 344 rats at dietary levels of 100, 250, and 750 ppm for two years. There was a dose related increase in fibroadenomas of the mammary gland at the mid and high dose ranges for females. The increase, however, is not an unusual finding in aging rats of this strain, and such effects have not been observed in any studies using trifluralin. Further, there were insufficient measurements of hematology, clinical chemistry, and urine throughout the study. Ethalfluralin demonstrated a negative oncogenic response when tested in the B6C3F1 mouse at 100, 400, and 1500 ppm for two years. It was a weakly positive mutagen in the bacterial cultures of S. typhimurium and E. coli, but negative in unscheduled DNA synthesis and L5178Y mouse lymphoma cell assays.

Metabolism Studies The collective data on profluralin, ethalfluralin, and trifluralin demonstrate similar patterns of excretion, with approximately 25-30% of the administered dose eliminated via urine and the remainder via feces. They demonstrate hemolytic effects at high doses with apparent adverse effects on the kidney at lower levels.

Three structurally similar urinary metabolites of ethalfluralin and trifluralin have been identified in rats. Two of trifluralin's metabolites (one of which was identical to an ethalfluralin metabolite) were administered in the diet to Harlan rats at 200 and 2000 ppm for 90-105 days. One of the metabolites produced adverse kidney effects (e.g. hyaline degeneration). These effects were observed at $\geq$200 ppm, predominantly in males. The other produced an increased incidence (at the high dose in males) of renal pathology with hyaline degeneration of the convoluted tubules, chronic pyelonephritis and calculi in the urinary bladder.

However, the Agency has determined that these data are not sufficient to characterize the general metabolism of trifuluralin in animals and is requiring metabolism data which are sufficient to isolate and characterize the metabolites which are excreted via the urine, formed in the urinary tract, and/or absorbed via the urinary tract.

Non-oncogenic response in rats

Evaluation of the available data from the long-term feeding studies in rats for trifluralin strongly suggest that trifluralin is a nephrotoxic compound that induces formation of renal calculi, significant increases in hyperplasia of the pelvic epithelia, and significant increases in chronic progressive nephrosis (CPN). In particular, the study with Fischer 344 rats (Eli Lilly 1980) also revealed clinical chemistry findings such as increased blood urea nitrogen (BUN) levels at the lowest dose tested (813 ppm), and increased creatinine excretion at the mid dose range (3250 ppm). These findings are summarized in the following table which includes the type of effect observed and the number of animals affected:

Renal Pelvis CPN, Hyperplasia and Calculi
in Fischer 344 Rat (Eli Lilly, 1980)

	0		813		3250		6500	
Sex:	M	F	M	F	M	F	M	F
No. of Rats:	60	60	59	60	60	60	60	60
Hyperplasia:	0	1	1	3	11	1	23	23
CPN:	37	27	50	23	51	21	54	50
Calculi:	3	9	8	27	20	35	43	43

Hematology findings in this study also revealed hemolytic changes which may be related to renal dysfunction. Finally, there were increased relative liver, kidney, and testes weights of males and of the liver and thyroid of females at the mid dose range. At the high dose in females, increased relative kidney and adrenal gland weights were observed.

With regard to the effects on the thyroid, it should be noted that there is evidence that the changes in thyroid weight and structure observed at high dosages may be a specific physiological response to renal dsyfunction (DeGroot et.al., Endocrinology, Vol. I, 1978). This reference indicates that renal dysfunction in humans can lead to alteration of thyroid function by affecting thyroid iodide levels and metabolic processes. Humans with chronic kidney disease are generally hypothyroid and often develop goiter. Increases in relative thyroid weight observed at $\geq$3200 ppm in the 1980 Eli Lilly rat study may be indicative of this response.

Additional data are being required to determine a NOEL for adverse kidney effects in the rat since the clinical chemistry, hematology, and urinalysis measurements in the existing data base are inadequate.

Mutagenic studies

No evidence of mutagenicity was observed when trifluralin was tested in a rat dominant lethal assay, *Saccharomyces cereviscae* assay, DNA repair assay, or SCE assay using Chinese hamster cells. The Agency concluded in its Special Review of trifluralin that additional data to assess risks from spindle fiber effects were needed. However, this data requirement is being deferred until the Agency can develop an appropriate testing protocol. Current test systems are not adequate or or sufficiently sensitive to assess risks from spindle effects. The Agency is consulting with experts in the field of mutagenicity testing in order to develop a suitable protocol.

Teratogenic and reproductive effects studies

Teratology studies conducted in the rat and the rabbit show no evidence that trifluralin is teratogenic. In the rat, the maternal toxicity NOEL was 225 mg/kg/day. Decreased body weight and food consumption were observed at 1000 and 475 mg/kg/day. The developmental toxicity (fetotoxicity) NOEL was 475 mg/kg/day based on decreased mean body weight at 1000 mg/kg/day. There were no teratogenic effects observed at doses up to and including 1000 mg/kg/day, the highest dose administered.

In the rabbit, the NOEL for maternal toxicity was 100 mg/kg/day. Anorexia and cachexia with resulting abortion were observed at dosages of 225 and 500 mg/kg/day. Developmental toxicity (fetotoxicity) observed at 500 mg/kg/day included depressed fetal weight and an increased number of fetal runts. There were no teratogenic effects observed at doses up to and including 500 mg/kg/day, the highest dose administered.

A 2-generation reproductive effects conducted with rats demonstrated that trifluralin does not impair reproductive ability. In this study, CD rats were administered 0, 200, 630, and 2000 ppm trifluralin in the diet. A reproductive effects NOEL was established at 2000 ppm. The systemic NOEL was 200 ppm, and the systemic LOEL (lowest-observed-effect-level) was 630 ppm, based on decreased body weights.

Acute Toxicity

Acute toxicity studies show that trifluralin is not acutely toxic to animals tested. The herbicide has been tested in animals via oral, dermal inhalation and ocular routes of exposure, and the results show only minor effects. The only remarkable acute toxicity finding is that trifluralin is a skin sensitizer; that is, it may produce allergic reactions in certain people.

Ecological Effects

Available data show that trifluralin is essentially non-toxic to avian species and does not impair avian reproduction. In studies with coldwater and warmwater finfish and aquatic invertebrates, there is evidence that trifluralin is highly toxic to these organisms.

Environmental Fate

Except for hydrolysis, the environmental fate data on trifluralin do not meet the Agency's current testing standards. The environmental fate characteristics of trifluralin are therefore largely inconclusive. However, the available data do not suggest that trifluralin has potential for leaching to ground water.

Risk Assessment

Trifluralin is oncogenic with a cancer potency estimate $(Q_1{}^*)$ of 7.7×10^{-3} $(\text{mg/kg/body weight/day})^{-1}$. In accordance with the Agency's 1984 Proposed Guidelines for Carcinogen Risk Assessment (49 FR 42694, November 23, 1984), the Agency has classified trifluralin as a Category C carcinogen, that is, a possible human carcinogen.

These guidelines categorize the evidence on carcinogenicity of chemicals in terms of how likely it is that the chemical is a human carcinogen. Under this scheme, Group A, "Human Carcinogen," is reserved for those chemicals for which there is sufficient evidence of carcinogenicity from human epidemiological studies. Group B, "Probable Human Carcinogen," is divided into subgroups 1 and 2. Group B1 requires some human epidemiological evidence.

Group B2 is said to be an appropriate categorization if there is "sufficient evidence" of the chemical's carcinogenicity from animal studies. "Sufficient evidence" is defined as an increased incidence of malignant tumors (or combined malignant and benign tumors) -- (a) in multiple species or strains, (b) in multiple experiments, or (c) to an unusual degree with regard to incidence, site or type of tumor, or age at onset. Group C ("possible human carcinogen") is said to be appropriate if there is, among other things, "definite malignant tumor response in a single well conducted experiment"; that is, "limited evidence" from animal studies. (There is also a Group D ("Not Classified") and a Group E that is reserved for chemicals shown to be noncarcinogenic in animal and/or human studies.)

EPA has decided to categorize the animal-study evidence of trifluralin's carcinogenicity as "limited," rather than "sufficient," because the positive results were limited to one strain of one species tested (the Fischer 344 rat in the 1980 Eli Lilly study). In addition, trifluralin was negative for oncogenicity in the 1966 Eli Lilly study in another rat strain (Sprague-Dawley rats, up to 2000 ppm in the diet for 2 years). Trifluralin did not appear to be oncogenic in the 1978 NCI study (Osborne Mendel rats, up to 6500 ppm in the diet for 78 weeks), although this study is inconclusive with regard to urinary tract tumors because too few dosed animals were examined for these tumors. Trifluralin was not oncogenic in the 1980 Lilly mouse study. In addition, Industria Prodotti Chemici has submitted both rat and mouse oncogenicity studies, which have not yet been fully reviewed, but indicate in the executive summaries that no compound related oncogenic effects were observed. The Agency presently has no reason to question the validity of these studies.

There was also no indication that the age of onset for transitional cell renal tumors was reduced in dosed versus control animals. The 1980 Lilly rat study did not incorporate interim or serial sacrifices into its protocol for demonstrating this specific response. However, the evidence examined from the animals that were sacrificed as moribund or that died prior to term did not demonstrate a relation between dosing and age of onset for these tumors. Furthermore, survival was unaffected by treatment since the majority of the tumors were not discovered until terminal sacrifice.

Moreover, there was no evidence of mutagenicity in rat dominant lethal, L5178Y mouse lymphoma, Ames Salmonella typhimurium, Saccharomcyces cerevisciae, DNA repair assays, or SCE using the chinese hamster cell.

Trifluralin arguably could satisfy the "sufficient evidence" criteron on the basis of an increase in an unusual "site or type of tumor." However, for the reasons discussed below, the Agency does not believe this criterion has been met.

The 1980 Lilly Fischer 344 rat study demonstrated a statistically significant increase in tumors of transitional cells of the renal pelvis of the kidney in males. The incidence of these tumors in the 1980 study was 0% (control), 3.3% (low dose), 5.1% (mid dose), and 10% (high dose). The high dose incidence of 10% is for combined benign and malignant tumors.

No malignant tumors at this site were observed in historical control data from this strain. However, historical control data show that male rats of this strain sometimes are afflicted with benign tumors at the same site. Data from control animals in 24 studies conducted by Lilly using the Fischer 344 rat showed that although no carcinomas were observed at that site, one male rat each of 30, 30, and 29 control male rats was found to have a nonmalignant adenoma of the renal pelvis of the kidney. The 1984 Proposed Guidelines state that "benign and malignant tumors will be combined unless the benign tumors are not considered to have the potential to progress to the associated malignancies of the same morphological type." Since EPA considered that the benign tumors observed in the historical controls could progress to malignant tumors of the same morphological type, EPA considered the benign tumors in the historical controls (range: 0% - 3.45%) when determining whether the tumors seen in the male rats in the 1980 Lilly study were "unusual," and therefore concluded that such tumors are not "unusual" or "rare."

The results of the various trifluralin studies did not satisfy the other criteria for "sufficient evidence" of carcinogenicity from animal evidence; that is, an increased incidence of malignant tumors (or combined malignant and benign tumors) -- (a) in multiple species or strains, (b) in multiple experiments, or (c) to an unusual degree with regard to age at onset.

The 1984 Proposed Guidelines are somewhat ambiguous regarding the categorization of a chemical where studies present the pattern of results shown by trifluralin. However, EPA has determined that the arguments favoring a "limited evidence" categorization outweigh those favoring a "sufficient evidence" categorization. Accordingly, EPA concludes that trifluralin is a Category C (possible human) carcinogen.

Dietary Risk

The oncogenic evidence is discussed above. The dietary risk associated with exposure to trifluralin was calculated in the PD4 issued in July 1982 (47 FR 33777). The dietary risk has not changed on the basis of the Registration Standard assessment of the oncogenicity data. Therefore, this section summarizes the Agency's 1982 findings with regard to oncogenic risk from dietary exposure to trifluralin and its N-nitrosamine contaminants. A more detailed discussion of the risk estimates may be found in Part II, Section C.2 of the PD4.

The total dietary risk from exposure to trifluralin is 5.3×10^{-7} assuming an average daily intake of 1.5 kilograms of food a day for the average 65 kilogram person (based on $Q_1^* = 7.7 \times 10^{-3}$). This estimate represents the combined risk of trifluralin itself and its N-nitrosamine contaminants. The N-nitrosamine contribution to the dietary risk is considered to be insignificant because its comprises such a minute fraction of the end-use product.

Dietary exposure to trifluralin was calculated based on the percentage of the crop acreage treated, actual trifluralin residue data, food factors, and estimated trifluralin to nitrosamine ratios.* The actual residue data available to the Agency demonstrated that all reported residues of trifluralin were either at or below the limit of detection (0.01 ppm). The reported residues were approximately one-fifth of the established tolerances, Assuming these data are generally representative of treated crops, the Agency assigned a value of 0.01 ppm trifluralin to all food commodities in which no detectable residues of >0.01 ppm were reported. It is reasonable to assume that actual residues of trifluralin are at or below this level.

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*These ratios were calculated on the basis of a trifluralin emulsifiable concentrate product which contains 44.5 percent trifluralin or 445,000 ppm. Assuming that the NDPA and other nitrosamines were individually present at levels of 0.10 ppm and 0.02 ppm respectively, the ratio of trifluralin to NDPA would be 4,450,000:1 (0.10 ppm) and to other nitrosamines, 22,250,000:1 (0.02 ppm).

Worker Exposure and Risk

The oncogenic risk to mixers, loaders and applicators of trifluralin via inhalation and dermal exposure was estimated in the PD4 (July 1982) and no data have been received since then to alter these calculations. The total risk to commercial applicators from exposure to trifluralin was estimated to be 2.0 x 10^{-7} based on the assumptions that a person works an average of 40 years out of a lifetime of 70, an average body weight of 65 kilograms, and a total exposure of 1082.7 micrograms/year for all crops (based on $Q_1^* =$ 7.7 x 10^{-3}).

In calculating these risks the Agency assumed a breathing rate of 1.8 cubic meters per hour which closely approximates the air intake for the type of work done by mixers, loaders, applicators and field workers. Since there were no data available on the dermal absorption rates of trifluralin, the Agency estimated the extent of this exposure on the basis of trifluralin's physical and chemical properties. Trifluralin is a solid material having a melting point of 48.5 to 49.0°C and is essentially insoluble in water, but is soluble in acetone, ethanol and xylene. In order to penetrate skin to any appreciable amount, a solid must be soluble in both water and organic solvents. Trifluralin would therefore have a maximum absorption of no more than 1 percent as an upper limit. When a trifluralin emulsifiable concentrate is added to water for application, a microcrystalline suspension of the solid is formed and dermal absorption would also not be expected to be above 1 percent. This estimate applies only to applicators. The Agency assumed that mixers and loaders wear suitable protective clothing so that dermal exposure would not normally be expected.

The Agency also calculated the reentry risk of exposure to trifluralin in the air and in the soil and determined that the risk to field workers would be in the 10^{-9} range for six major crop uses, including soybeans, cotton, and tomatoes. This oncogenic risk estimate was calculated assuming that after a single application of 1 lb. active ingredient/acre a field worker could experience 10 separate exposures annually. That is, ten tasks were identified which could result in exposure; the exposure was then estimated for each task. The Agency estimated that a field worker could be exposed to a total of 66.34 micrograms/year via inhalation and dermal exposure to trifluralin vapor, and dermal exposure to treated soil. The Agency therefore concluded that the risk to fieldworkers from reentry would be expected to be quite low, particularly since trifluralin is typically incorporated into the soil after application. A detailed explanation of the Agency's risk assessment can be found in Part II, Section C.3&4 of the PD4.

Tolerance Reassessment

The following tolerances have been established for residues of trifluralin in raw agricultural commodities (40 CFR 180.207):

Commodity	Tolerance (ppm)
Alfalfa, hay	0.2
Asparagus	0.05
Barley, fodder	0.05
Barley, forage	0.05
Barley, hay	0.05
Barley, straw	0.05
Carrots	1.0
Citrus fruits	0.05
Corn, grain (excluding popcorn)	0.05
Corn, grain (excluding popcorn), forage	0.05
Corn, grain (excluding popcorn), fodder	0.05
Cottonseed	0.05
Cucurbits	0.05
Flax, seed	0.05
Flax, straw	0.05
Grain, crops (except fresh corn and rice grain)	0.05
Grapes	0.05
Hops	0.05
Legumes, forage	0.05
Mung bean sprouts	2.0
Nuts	0.05
Peanut, hulls	0.1
Peanuts	0.05
Peppermint, hay	0.05
Rape, seed	0.05
Rape, straw	0.05
Safflower seed	0.05
Sorghum, fodder	0.05
Sorghum, forage	0.05
Spearmint, hay	0.05
Stone fruits	0.05
Sugarcane	0.05
Sunflower seed	0.05
Upland Cress	0.05
Vegetables, fruiting	0.05
Vegetables, leafy	0.05
Vegetables, root (excluding carrots)	0.05
Vegetables, seed and pod	0.05
Wheat, grain	0.05
Wheat, straw	0.05

The following tolerances have been established for trifluralin in processed foods (21 CFR 194.440):

Food	Tolerance (ppm)
Peppermint oil	2
Spearmint oil	2

In addition, the following international tolerances have been established for trifluralin:

Canadian tolerances of 0.1 ppm have been established for residues of trifluralin in or on barley grain, beans (snap), cole crops, flax, herbs, mustard seed, peas, peppers, rape seed, soybeans, sunflower, tomatoes, and wheat.

Mexican tolerances of 0.05 ppm have been established for residues of trifluralin in or on asparagus, broccoli, cabbage, chili pepper, citrus fruits, corn forage, cottonseed, peanuts, safflower seed, sugarcane, tree nuts and wheat. A Mexican tolerance has also been established at 0.2 ppm for residues of trifluralin per se in or on alfalfa hay.

No Codex Alimentarius Commission Maximum Residue Limits have been established for residues of trifluralin.

The available data are insufficient to fully reassess the established tolerances for residues of trifluralin. The metabolism of trifluralin in plants and animals is not adequately understood. Radiolabeled studies conducted to characterize residues of trifluralin and its metabolites in carrot roots provide an adequate description of the metabolism of trifluralin in root crops only. Radiolabeled studies to assess the uptake and translocation of trifluralin on other crops were not adequate to depict metabolism in the foliage of crops treated via soil application and on crops, such as corn, sorghum, and sugar beets, which may be treated via direct foliar application. At present, trifluralin per se is considered to be the sole residue of concern in plants. However, trifluralin has twelve known metabolites which must be sufficiently quantified.

Presently, no tolerances exist for residues of trifluralin in animal products because residues were not characterized in tissues and milk of ruminants and no poultry data were submitted.

Adequate methods are available to detect trifluralin residues in or on plant commodities for data collection and enforcement procedures, including a method to detect trifluralin in the presence of interfering pesticides.

There are adequate data to ascertain that residues of trifluralin are stable on frozen plant products for up to ten months and on plant products stored in the dark in polyethylene bags at room temperature for up to 121 days. However, the Agency is lacking data depicting the storage intervals and conditions of storage of samples used to support all established tolerances for residues of trifluralin, and data depicting the percent decline in residues at the times and under the conditions specified.

Sufficient residue data are available only to ascertain the adequacy of the established tolerances for residues of trifluralin in or on the following commodities: carrots, fruiting vegetables, citrus fruits, grapes, (tree) nuts, wheat grain, barley forage, asparagus, flax seed, cottonseed, hops, peanuts and peanut hulls, peppermint and spearmint hay, rape seed, safflower seed, sugarcane, and sunflower seed. (Depending upon the results of required plant metabolism studies, this conclusion may change, with the exception of root crops as discussed earlier in this section.)

Data on the magnitude and levels of residues present in various agricultural commodities are either unavailable or insufficient to assess the adequacy of existing tolerances remaining or to establish new tolerances for crops now included in obsolete crop groups. There is also not sufficient data to determine whether residues concentrate when several of the commodities are processed.

The Acceptable Daily Intake (ADI) and the Maximum Permissible Intake (MPI) are two ways of expressing the amount of a substance that the Agency believes, on the basis of the results of data from animal studies and the application of "safety" or "uncertainty" factors, may safely be ingested by humans without risk of non-oncogenic adverse health effects. The ADI is expressed in terms of milligrams (mg) of the substance per kilogram (kg) of body weight per day (mg/kg/day). The MPI, a related figure, is obtained by assuming a human body weight of 60 kg, and is expressed in terms of mg of substance per day (mg/day). The Agency has calculated a Provisional ADI (PADI) of 0.01 mg/kg/day for trifluralin on the basis of missing data. The MPI for trifluralin is 0.6 mg/day.

The PADI for trifluralin currently is based on the results from a 3-year dog feeding study, from which the Agency concluded that the no-observed-effect level (NOEL) was seen at 400 ppm of the substance in the animals' diet, or 10 mg/kg of animal body weight/day. 400 ppm in the diet was the lowest dose administered; compound-related increases in emesis and liver weight were observed at the mid- and high-dose levels. The PADI was derived by use of a safety factor of 1000 (to account for possible intra- and inter-species differences and to allow for the incompleteness of the chronic toxicity base in the rat). The NOEL from the dog study, 10/mg/kg/day, divided by this 1000-fold factor, yields a human PADI of 0.01 mg/kg/day. The MPI for a 60-kg human thus is 0.6 mg/day.

The theoretical maximum residue contribution (TMRC) is the theoretically maximum amount of residues of a pesticide that might be present based in the human diet, based on assumptions the Agency makes about the average human daily intake of foods containing residues at the level of the established tolerances. The established tolerances for trifluralin have a theoretical maximum residue contribution (TMRC) of 0.0429 mg/day in a 1.5 kg diet. The percentage of the PADI utilized is 7%. The Agency will recalculate the ADI for trifluralin when additional data are available to establish a NOEL for nephrotoxic effects observed in the rat.

PART IV. REGULATORY POSITION AND RATIONALE

A. REGULATORY POSITIONS AND RATIONALES

Based on review and evaluation of most available data* and other relevant information on trifluralin, the Agency has made the following determinations. Where labeling requirements are imposed, specific language is set forth in Part IV, Section D.

1. If any of the risk criteria in 40 CFR Part 154.7 has been met or exceeded, a special review of the chemical is conducted. Trifluralin does not meet any of the criteria, and therefore is not being placed into the special review process at this time.

Rationale: Although trifluralin is oncogenic to male and female rats, EPA does not believe that trifluralin meets the criterion in 40 CFR 154.7(b)(2) for starting a special review. EPA's special review rules provide that the Administrator may conduct a special review if a pesticide use "may pose a risk of inducing in humans an oncogenic...effect, which is of concern in terms of either the degree of risk to individual humans or the number of humans at some risk..." (50 FR 49016, November 27, 1985). EPA concludes that the risk of oncogenic effects is not of sufficient concern to warrant a special review of trifluralin. The Registration Standard review of the data on trifluralin reaffirms the Agency's estimate of the risks in the earlier Special Review review of the chemical. (The results of this review are discussed in Part II, C. of the PD4.)

2. The Agency will continue to require that registrants of products containing trifluralin:

(a) maintain total N-nitrosamine content in technical trifluralin at levels no greater than 0.5 ppm;

(b) identify and quantify all N-nitrosamine contaminants likely to appear in technical manufacturing use products;

(c) advise the Agency as to the quality control procedures used to assure that the level of total N-nitrosamine contamination does not exceed that declared on the the Confidential Statement of Formula;

(d) maintain total N-nitrosamine contamination in formulated products at levels no greater than a number to be calculated as follows: 0.5 ppm total N-nitrosamine contamination allowed in technical trifluralin x X% technical trifluralin in the end-use product x 2 to allow for possible generation of nitrosamines during the formulation process.

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*See the addendum to the Bibliography for a partial list of data on trifluralin not yet reviewed.

Rationale: Many N-nitroso compounds are known to be carcinogenic and may pose a risk to human health. Therefore, it is necessary to assure that exposure to these compounds which contaminate pesticides is kept to a minimum. In June 1980, the Agency published a proposed policy concerning regulation of pesticides contaminated with N-nitroso compounds (45 FR 42854). This policy indicated that contamination with carcinogenic N-nitroso compounds at levels exceeding 1 ppm (with an individual life-time risk to farmers, applicators, and other exposed populations exceeding 1×10^{-6}) would be cause for concern and possible regulatory investigation or action. The N-nitroso contamination limits imposed on trifluralin registrants are consistent with this policy.

3. The Agency will not require restricted use classification for trifluralin end-use products.

Rationale: Trifluralin is not acutely toxic (toxicity category III) when tested via the dermal, inhalation, oral and ocular routes in rats and rabbits. Some liquid formulations containing trifluralin have been assigned toxicity category II on the basis of more acutely toxic inert ingredients. Trifluralin therefore does not meet the acute toxicity criteria (40 CFR 162.11) for a restricted use classification.

4. The Agency is not requiring reentry intervals or unique human hazard precautionary statements for currently registered trifluralin products.

Rationale: As indicated above, the acute toxicity of trifluralin is low (Category III) for the vast majority of products. Additionally, trifluralin is normally incorporated into the soil within 24 hours after application and therefore exposure and resultant risks to field workers are expected to be quite low. The only remarkable acute toxicity finding on trifluralin is that it is a skin sensitizer; that is, it may cause allergic reactions in certain susceptible people.

5. The Agency is requiring submission of general metabolism and dermal penetration studies.

Rationale: General metabolism and dermal penetration studies are normally required by 40 CFR Part 158.135 for products with trifluralin's use patterns.

6. The following data are required to fully assess the environmental fate of trifluralin: photodegration studies in water and on soil; aerobic and anaerobic soil and aquatic metabolism studies; leaching and adsorption/desorption studies; volatility studies; soil, aquatic, and long-term field dissipation studies; and accumulation studies on rotational and irrigated crops, fish, and other non-target aquatic organisms.

Rationale: Except for the hydrolysis data, all the environmental fate data do not meet the guidelines standards for acceptable testing. These data are normally required under 40 CFR Part 158.130 and are necessary to assess the environmental fate and transport and the potential exposure to trifluralin.

7. The Agency is not requiring monitoring studies to assess the potential for trifluralin to contaminate ground water.

Rationale: Five leaching and adsorption/desorption studies were reviewed and classified as only supplementary because they were not conducted in accordance with current testing guidelines. However, these data do not suggest that trifluralin is a potential groundwater contaminant. Trifluralin is in a class of immobile chemicals which have little potential for leaching to ground water.

8. The Agency is requiring registrants to conduct multi-year/multi-site fish residue monitoring studies to determine the extent to which fish accumulate residues of trifluralin throughout the areas of major usage. (Refer to Table A for a full description of the data required.)

Rationale: Available data indicate that trifluralin, when used on soybeans under normal conditions, is transported to aquatic environments via soil run-off, is detected in pond sediment and can accumulate to detectable levels in fish. Vertebral anomalies (minor lesions) were observed in 0% to 25% of the fish removed from the test pond and pathologically examined. These data suggest that trifluralin may contribute to increased vertebral anomalies in fish. The Agency requires additional data to determine whether this may be a widespread problem.

9. The Agency is requiring that all labels of end-use products containing trifluralin registered for use on ditchbanks bear irrigation water restrictions. (Refer to Part IV, Section D for the wording of this statement.)

Rationale: Trifluralin is registered for use on ditchbanks which may serve as a source of irrigation water for food or feed crops. There is insufficient data on the bioaccumulation of trifluralin in water on such sites. Restrictions are therefore necessary to avoid impermissible residues in food or feed.

10. The Agency is requiring that trifluralin granular products intended for use on turf bear precautionary language concerning exposure of children and domestic animals. (Refer to Part IV, Section D for the exact language.)

Rationale: The Agency is concerned that children and domestic animals may inadvertantly come into contact with or consume the granules before the treated area is properly irrigated so the granules are dissolved and absorbed by the soil.

11. The Agency has determined that the use of trifluralin on croplands poses a risk to certain [illegible]gered or threatened plant and aquatic species. All manufac[illegible]ing-use and end-use products will therefore be required to bear appropriate labeling precautions.

Rationale: Based on a consultation with the Office of Endangered Species, the Agency has determined that the use of trifluralin on corn, soybeans, cotton, sorghum, and small grains could impact several Federally designated endangered species. Appropriate precautionary labeling is not however being required through this Registration Standard. The Agency will soon issue a Pesticide Registration Notice to implement endangered species labeling requirements for a number of pesticides. That notice will contain the precise label text required and the timeframes for inclusion on the label.

12. Available residue chemistry and toxicology data are insufficient to permit the Agency to conduct a full tolerance reassessment.

Rationale: Data gaps exist for plant and animal metabolism, storage stability, analytical methods, magnitude of residues in several raw agricultural commodities and processed food and feed items. Thus, upon receipt of the data required in Table A, the Agency's conclusions with regard to the adequacy of established tolerances are subject to change. Since the data required for individual commodities are dependent on the metabolism data, the metabolism data will be obtained and reviewed prior to any required residue data.

13. The Agency is requiring additional data to quantify and identify the nature of residues in plants, poultry (including eggs), and ruminants (including milk).

Rationale: The metabolism of trifluralin in both plants and animals is not adequately understood. Available information indicates that approximately 80 percent of the residue present in plants is trifluralin *per se*. However, trifluralin has several known metabolites which require identification and quantification in plants. Tolerances may, upon receipt of the required data, be revised to include both the parent compound and metabolites which are of toxicological concern.

There are presently no tolerances for trifluralin in meat and poultry and their by-products. Since ruminants and chickens may reasonably be expected to consume feeds from crops treated with trifluralin, additional data are required to characterize residues and to determine the need for tolerances in animal products.

14. The Agency is not requiring additional residue data on the following raw agricultural commodities: carrots, turnips, fruiting vegetables, citrus fruits, grapes, (tree) nuts, wheat grain, barley forage, asparagus, flax seed, cottonseed, hops, okra, peanuts and peanut hulls, peppermint and spearmint hay, rape seed, safflower seed, sugarcane, and sunflower seed.

Rationale: The Agency has determined that the available residue data adequately support the established tolerances for these raw agricultural commodities. However, depending upon the results of plant metabolism studies, these tolerances (with the exception of root crops for which metabolism has been characterized) may be revised to reflect expression of both trifluralin and metabolites of toxicological concern.

15. The Agency is requiring additional residue data on the following raw agricultural commodities: corn grain, sorghum grain, corn forage and fodder, alfalfa hay, sorghum forage, flax straw, and peppermint and spearmint oil.

Rationale: A review of the available data indicates that the Agency does not have sufficient residue data to support the established tolerances for trifluralin on the above commodities. (Refer to Table A for a description of the data being required.)

16. The Agency is requiring processing data for the following raw agricultural commodities: potatoes, sugar beets, soybeans, citrus fruits, sorghum, barley, corn and wheat grain, alfalfa hay, flax seed, cottonseed, peanuts, spent peppermint and spearmint hay, sugarcane and sunflower seed.

Rationale: There are no data available to determine whether residues of trifluralin concentrate when these commodities are processed into food or feed items.

17. (a) The Agency is deleting the following crop group tolerances established for trifluralin: root crops, leafy vegetables, seed and pod vegetables, forage legumes, cucurbits, stone fruits, and grain crops.

(b) The Agency will establish the following crop group tolerances: leaves of root and tuber vegetables, Brassica leafy vegetables, legume vegetables (succulent and dried), foliage of legume vegetables, fruiting vegetables, and tree nuts.

Rationale: (a) These crop groups were established prior to June 1983 when the Agency's crop grouping scheme was substantially revised, and they are therefore now obsolete. They will be replaced by new crop groups set forth in 40 CRF 180.34 if sufficient data on representative crops are available.

(b) Available residue data on existing members of the groups are adequate to support such group tolerances, and the uses and tolerances are significantly similar as required by 40 CFR 180.34(f). (Refer to Table A for a list of the commodities included in the groups.)

18. The Agency has determined that the following crop group tolerances cannot be established: root and tuber vegetables, bulb vegetables, leafy vegetables (except Brassica), cucurbits, stone fruits, small fruits and berries, cereal grains, forage, fodder, and straw of cereal grains and non-grass animal feeds.

Rationale: The reasons that group tolerances are not appropriate are because residue data are not available for designated representative crops or use patterns are not sufficiently similar. Separate tolerances will be established for all the commodities which would be subject to these group tolerances. These commodities are listed in Table A.

19. The Agency has determined that tolerance proposals and supporting residue data are needed for the following raw agricultural commodities: corn silage, sorghum hay and silage, wheat forage and hay, alfalfa forage, cotton forage, peanut vines and hay, sugarcane forage, sunflower forage, and turnip roots.

Rationale: There is either no data or insufficient data to characterize residues on these commodities on which residue can be reasonably expected to occur and transfer to animals in feed items. In addition, for peanut vines and hay, and cotton, sugarcane, and sunflower forage, registrants may place appropriate grazing/feeding restrictions on their labels as an alternative to generating the data. Each registrant will have six months to notify the Agency of which alternative is selected. (Refer to Table A for a detailed description of the residue data required.)

20. The Agency has determined that the tolerances for barley and wheat straw (0.05 ppm) should be increased to 0.1 ppm.

Rationale: Available data demonstrate that residues occurring in these commodities exceeded or would exceed the existing tolerance taking low recovery rates into account. The dietary risk of increasing these tolerances is likely to be quite low since the contribution to the TMRC would not be significant. This decision is, however, dependent on the studies to determine how animals metabolize trifluralin consumed from treated feed items.

21. The Agency will not establish any new food/feed additive regulations pursuant to section 409 of the Federal Food, Drug, and Cosmetic Act (FFDCA) and is deferring action on previously established food/feed additive regulations.

Rationale: The Delaney Clause in section 409 of the FFDCA bars the establishment of food additive regulations for substances which induce cancer in man or test animals, with exceptions which may not apply here.. The Agency is currently developing a position relative to the Delaney Clause and FIFRA. Once this policy has been established, the Agency will determine what action is required in relation to pesticides which have induced positive oncogenic responses in chronic animal studies.

22. While the data gaps are being filled, currently registered manufacturing-use products (MPs) and end-use products (EPs) containing trifluralin as the sole active ingredient may be sold, distributed, formulated and used in the United States, subject to the terms and conditions specified in this Registration Standard. Registrants must provide or agree to develop additional data, as specified in Table A of the Appendices, in order to maintain existing registrations.

The Agency will issue registrations for substantially similar products. However, new uses will be approved only on a case-by-case basis after considering the effects on the theoretical maximum residue contribution (TMRC) and the maximum permissible intake (MPI), and the oncogenic risks.

Rationale: While the currently available data are not adequate to support the registration of any registered trifluralin product unconditionally under FIFRA sec. 3(c)(5), the available data do support the conditional registration of all of the currently registered products. Under the FIFRA, the Agency does not normally cancel or withhold registration simply because data are missing or inadequate [see FIFRA sections 3(c)(2)(B) and (3)(c)(7)]. Issuance of this Standard provides a mechanism for identifying data needs. These data will be reviewed and evaluated. The Agency will then determine whether additional regulatory changes are necessary.

B. CRITERIA FOR REGISTRATION

To be covered under this Standard, manufacturing use products must contain trifluralin as the sole active ingredient, bear required labeling, and conform to the product composition, acute toxicity limits, and use pattern requirements listed in Appendix B, EPA Index to Pesticide Chemicals.

C. ACCEPTABLE RANGES AND LIMITS

1. Product Composition Standard

To be registered or reregistered under this Standard, manufacturing use products must contain trifluralin as the sole active ingredient. Each manufacturing use formularion proposed for registration must be fully described with an appropriate certification of limits, stating maximum and minimum amounts of the active ingredient and inert ingredients which are present in products, as wll as impurities found at greater than 0.1%.

2. Acute Toxicity Limits

The Agency will consider registration of technical grade and manufacturing-use products containing trifluralin, provided that the product labeling bears appropriate precautionary statements for the acute toxicity category in which each product is placed, as required by 40 CFR 162.10.

3. Use Patterns

To be registered under the standard, technical grade or manufacturing-use products containing trifluralin may be labeled for formulation into end-use products registered for the uses listed in Appendix B, EPA Index to Pesticide Chemicals -- Trifluralin. This index lists all registered uses, as well as the approved maximum application rates and frequencies.

D. LABELING AND PACKAGING REQUIREMENTS

All labeling changes required by this Standard must appear on all manufacturing-use products and end-use products released for shipment by the registrant within 1 year of issuance of this Standard. Within 2 years after issuance of this standard, all labeling requirements must appear on all products distributed, sold, offered for sale, held for sale, shipped, delivered for shipment, or received (and having been so received) delivered or offered to be delivered by any person.

The following information must appear on the labeling:

1. All Products. All products must bear appropriate labeling as specified in 40 CFR 162.10. Specific information on label requirements are contained in the Appendix II, Labeling Appendices.

   a. Ingredient Statement. The ingredient statement must list the active ingredient as:

      Trifluralin: alpha,alpha,alpha-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine...%

   b. Disposal Statements. Because trifluralin has not been designated as an acute or toxic hazardous waste under the Resource Conservation and Recovery Act (RCRA), the following is the appropriate pesticide disposal statement for trifluralin products:

      "Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

   The labels of all products must bear the appropriate container disposal statement (Labeling Appendices).

2. Technical Grade/Manufacturing-Use Products

   a. Use Pattern Statements. Labeling for all technical grade and manufacturing-use trifluralin products must state that they are intended for formulation into end-use herbicide products registered for one or more of the uses set forth in the EPA Index to Pesticide Chemicals - Trifluralin, Appendix B. However, no use may be included on such labeling if the registrant fails to agree to comply with the data requirements for that use pattern as listed in Table A and/or Table B, Appendix I, as appropriate.

b. Precautionary Statements. Labels for technical grade and manufacturing-use pesticide products must bear statements reflecting the compound's acute human toxicity, as specified in 40 CFR 162.10 (Labeling Appendices), and statements pertaining to environmental hazard. In addition, all manufacturing-use products must contain the following environmental precautionary statement:

> "Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public water unless this product is specifically identified and addressed in an NPDES* permit. Do not discharge effluent containing the product into sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

3. Statements for End-Use Products.

a. The following environmental precautionary statement must appear on the label of each product registered for any outdoor use:

> "This pesticide is toxic to fish. Do not apply directly to water or wetlands (swamps, bogs, or marshes). Drift or runoff from treatment areas may be hazardous to aquatic organisms in neighboring aquatic sites. Do not contaminate water by cleaning of equipment or disposal of waste."

b. The following restrictions must appear on the label of each end-use product labeled for use on ditchbanks:

> "Do not use irrigation water on food or feed crops within 18 months after application of trifluralin to ditchbanks unless it is determined that the water is free of trifluralin residues."

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*National Pollution Discharge Elimination System

c. The label of each end-use product registered for weed control on lawns must bear the following precautionary statement:

> "Do not allow children or pets on lawn until 1/2" of water has been applied to lawn and the water has dried (or, if wet conditions persist, until 24 hours have passed)."

V. PRODUCTS SUBJECT TO THIS STANDARD

All products containing the pesticide identified in Section II.A. are subject to certain requirements for data submission or changes in composition, labeling or packaging of the product. The applicable requirements depend on whether the product is a manufacturing or end use product and whether the pesticide is the sole active ingredient or one of multiple active ingredients.

Products are subject to this Registration Standard as follows:

A. Manufacturing use products containing this pesticide as the sole active ingredient are subject to: 1) The restrictions upon use, composition, or packaging listed in Section IV; 2) The data requirements listed in Tables A and B; 3) The labeling requirements specified for manufacturing-use products in Section IV; 4) Administrative requirements (application forms, Confidential Statement of Formula, data compensation provisions) associated with reregistration.[1]

B. End-use products containing this pesticide are subject to: 1) The labeling requirements specified for end-use products in Section IV; 2) If not eligible for the formulator's exemption, the data requirements listed in Table A.[2]

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[1] Data requirements are listed in the Tables in Appendix I of this Registration Standard. The Guide to Tables in that Appendix explains how to read the Tables. Table A lists generic data requirements applicable to all products containing the pesticide subject to this Registration Standard. Table B lists product-specific data applicable to manufacturing-use products. The data in Tables A and B need not be submitted by a producer who is eligible for the formulator's exemption.

[2] If you purchase from another producer and use as the source of your active ingredient only EPA-registered products, you are eligible for the formulator's exemption for generic data concerning that active ingredient (Table A) and product-specific data for the registered manufacturing use product you purchase (Table B). Two circumstances nullify this exemption: 1) If you change sources of active ingredient to an unregistered product, formulate your own active ingredient, or acquire your active ingredient from a firm with ownership in common with yours, you individually lose the exemption and become subject to the data requirements in Table A. 2) If no producer subject to the generic data requirements in Table A agrees to submit the required data, all end use producers lose the exemption, and become subject to those data requirements.

VI. REQUIREMENT FOR SUBMISSION OF GENERIC DATA

This portion of the Registration Standard is a notice issued under the authority of FIFRA sec. 3(c)(2)(B). It refers to the data listed in Table A, which are required to be submitted by registrants to maintain in effect the registration of products containing this active ingredient.[3]

A. What are generic data?

Generic data pertain to the properties or effects of a particular active ingredient. Such data are relevant to an evaluation of all products containing that active ingredient regardless of whether the product contains other ingredients. (unless the product bears labeling that would make the data requirement inapplicable).

Generic data may also be data on a "typical formulation" of a product. "Typical formulation" testing is often required for ecological effects studies and applies to all products having that formulation type. These are classed as generic data, and are contained in Table A.

B. Who must submit generic data?

All current registrants are responsible for submitting generic data in response to a data request under FIFRA sec. 3(c)(2)(B) (DCI Notice). EPA has decided, however, not to require a registrant who qualifies for the formulator's exemption (FIFRA sec. 3(c)(2)(D) and § 152.85) to submit generic data in response to a DCI notice if the registrant who supplies the active ingredient in his product is complying with the data request.

If you are not now eligible for a formulator's exemption, you may qualify for one if you change your source of supply to a registered source that does not share ownership in common with your firm. If you choose to change sources of supply, the Confidential Statement of Formula must identify the new source(s) and you must submit a Formulator's Exemption Statement form.

If you apply for a new registration for products containing this active ingredient after the issuance of this Registration Standard, you will be required to submit or cite generic data relevant to the uses of your product if, at the time the application is submitted, the data have been submitted to the Agency by current registrants. If the required data have not yet been submitted, any new registration will be conditioned upon the new registrant's submission or citation of the required data not later than the date upon which current registrants of similar products are required to provide such data. See FIFRA sec. 3(c)(7)(A). If you thereafter fail to comply with the condition of that registration to provide data, the registration may be cancelled (FIFRA sec. 6(e)).

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[3] Registrations granted after issuance of this Standard will be conditioned upon submission or citation of the data listed in this Registration Standard.

C. What generic data must be submitted?

You may determine which generic data you must submit by consulting Table A. That table lists the generic data needed to evaluate current uses of all products containing this active ingredient, the uses for which such data are required, and the dates by which the data must be submitted to the Agency.

D. How to comply with DCI requirements.

Within 90 days of your receipt of this Registration Standard, you must submit to EPA a completed copy of the form entitled "FIFRA Section 3(c)(2)(B) Summary Sheet" (EPA Form 8580-1, enclosed) for each of your products. On that form you must state which of the following six methods you will use to comply with the DCI requirements:

1. You will submit the data, and either --

   (a) Submit the existing data that you believe will satisfy the data requirements, or

   (b) State that you will secure the data or have made a contract to have any necessary studies completed within the applicable time period.

2. You have entered into an agreement with one or more registrants to jointly develop (or share in the cost of developing) the data, but will not be submitting the data yourself. If you use this method, you must state who will submit the data on which you will rely. You must also provide EPA with documentary evidence that an agreement has been formed which allows you to rely upon the data to be submitted. Such evidence may be: (1) your letter offering to join in an agreement and the other registrant's acceptance of your offer, (2) a written statement by the parties that an agreement exists, or (3) a written statement by the person who will be submitting the data that you may rely upon its submission. The Agency will also require adequate assurance that the person whom you state will provide the data is taking appropriate steps to secure it. The agreement to produce the data need not specify all of the terms of the final arrangement between the parties or a mechanism to resolve the terms.

3. You have attempted to enter into an agreement to jointly develop data, but no other registrant has accepted your offer. You request that EPA not suspend your registration for non-compliance with the DCI. EPA has determined that, as a general policy, it will not suspend the registration of a product when the registrant has in good faith sought and continues to seek to enter into a data development/cost sharing program, but the other registrants developing the data have refused to accept its offer. [If your offer is accepted, you may qualify for Option 2 above by entering into an agreement to supply the data.]

In order to qualify for this method, you must:

1. File with EPA a completed "Certification of Attempt to Enter into an Agreement with other Registrants for Development of Data" (EPA Form 8580-6, enclosed).

2. Provide us with a copy of your offer to the other registrant and proof of the other registrant's receipt of your offer (such as a certified mail receipt). Your offer must, at a minimum, contain the following language or its equivalent:

> [Your company name] offers to share in the burden of producing the data required pursuant to FIFRA sec. 3(c)(2)(B) in the [name of active ingredient] Registration Standard upon terms to be agreed or failing agreement to be bound by binding arbitration as provided by FIFRA section 3(c)(2)(B)(iii).

The remainder of your offer may not in any way attempt to limit this commitment. If the other registrant to whom your offer is made does not accept your offer, and if the other registrant informs us on a DCI Summary Sheet that he will develop and submit the data required under the DCI, then you may qualify for this option. In order for you to avoid suspension under this method, you may not later withdraw or limit your offer to share in the burden of developing the data. In addition, the other registrant must fulfill its commitment to develop and submit the data.

4. You request a waiver of the data requirement. If you believe that a data requirement does not (or should not) apply to your product or its uses, you must provide EPA with a statement of the reasons why you believe this is so. Your statement must address the specific composition or use factors that lead you to believe that a requirement does not apply. Since the Agency has carefully considered the composition and uses of pesticide products in determining that a data requirement applies, EPA does not anticipate that many waivers will be granted. A request for waiver does not extend the timeframes for developing required data, and if your waiver request is denied, your registration may be suspended if you fail to submit the data.

5. You request that EPA amend your registration by deleting the uses for which the data are needed. You are not required to submit data for uses which are no longer on your label.

6. You request voluntary cancellation of the registration of your product(s) for which the data are needed.

E. Procedures for requesting a change in testing protocol.

If you will generate the required data and plan to use test procedures which deviate from (or are not specified in) either EPA's Pesticide Assessment Guidelines or the Reports of Expert Groups to the Chemicals Group, Organization for Economic Cooperation and Development (OECD) Chemicals Testing Programme, you must submit for EPA approval the protocols you propose to use.

You should submit your protocols before beginning testing and await EPA approval, because the Agency will not ordinarily accept as sufficient studies using unapproved protocols. A request for protocol approval will not extend the timeframe for submission of the data, nor will extensions generally be given to conduct studies due to submittal of inappropriate protocols.

F. Procedures for requesting extensions of time.

If you think that you will need more time to generate the data than is allowed by EPA's schedule, you may submit a request for an extension of time. Any request for a time extension which is made as an initial response to a section 3(c)(2)(B) request notice must be submitted in writing to the Product Manager listed at the end of this section and must be made before the deadline for response. Once dates have been committed to and EPA has accepted these commitments, any subsequent requests for a time extension must be submitted in writing to the Office of Compliance Monitoring.

EPA will view failure to request an extension before the response deadline.as a waiver of any future claim that there was insufficient time to submit the data. While EPA considers your request, you must strive to meet the deadline for submitting the data.

The extension request should state the reasons why you believe that an extension is necessary and the steps you have taken to meet the testing deadline. Time extensions normally will not be granted due to problems with laboratory capacity or adequacy of funding, since the Agency believes that with proper planning these can be overcome. Time extensions may be considered when joint data development is planned, or when the Agency must approve a new or modified protocol before the study can be begun.

A request for an extension does not automatically extend the timeframe for submission of the data. If EPA denies your request for a time extension and you do not submit the data as requested, EPA may begin proceedings to suspend the registrations of your products.

G. Existing stocks provision upon suspension or cancellation.

The Agency has determined that if a registration is suspended for failure to respond to a DCI request under FIFRA sec. 3(c)(2)(B), an existing stocks provision is not consistent with the Act. Accordingly, the Agency does not anticipate granting permission to sell or distribute existing stocks of suspended product except in rare circumstances. If you believe that your product will be suspended or cancelled and that an existing stocks provision should be granted, you have the burden of clearly demonstrating to EPA that granting such permission would be consistent with the Act. The following information must be included in any request for an existing stocks provision:

1. Explanation of why an existing stocks provision is necessary, including a statement of the quantity of existing stocks and your estimate of the time required for their sale or distribution; and

2. Demonstration that such a provision would be consistent with the provisions of FIFRA.

VII. REQUIREMENT FOR SUBMISSION OF PRODUCT-SPECIFIC DATA

Under its DCI authority, EPA has determined that certain product-specific data are required to maintain your registrations in effect. Product-specific data are derived from testing using a specific formulated product, and, unlike generic data, generally support only the registration of that product. All such data must be submitted by the dates specified in this Registration Standard.

If you have a manufacturing-use product, these data are listed in Table B. As noted earlier, the Agency has decided that it will not routinely require product-specific data for end use products at this time.

In order to comply with the product specific data requirements, you must follow the same procedures as for generic data. See Section VI.D, E, F, and G. You should note, however, that product chemistry data are required for every product, and the only acceptable responses are options VI.D.1. (submit data) or VI.D.6.(cancellation of registration).

Failure to comply with the product-specific data requirements for your products will result in suspension of the product's registration.

VIII. REQUIREMENT FOR SUBMISSION OF REVISED LABELING

FIFRA requires each product to be labeled with accurate, complete and sufficient instructions and precautions, reflecting the Agency's assessment of the data supporting the product and its uses. General labeling requirements are set out in 40 CFR 162.10 (see Appendix II - LABELING and SUMMARY). In addition, labeling requirements specific to products containing this pesticide are specified in Section IV.D of this Registration Standard. Applications submitted in response to this notice must include draft labeling for Agency review.

If you fail to submit revised labeling as required, which complies with 40 CFR 162.10 and the specific instructions in Section IV.D., EPA may seek to cancel or suspend the registration of your product under FIFRA sec. 6(b)(1).

IX. INSTRUCTIONS FOR SUBMISSION

A. Manufacturing Use Products (MUPs) containing Trifluralin as sole active ingredient.

1. Within 90 days from receipt of this document, you must submit to the Product Manager in the Registration Division for each product subject to this Registration Standard:

a. The "FIFRA Section 3(c)(2)(B) Summary Sheet" (EPA Form 8580-1), with appropriate attachments.[4]

b. Confidential Statement of Formula (EPA Form 8570-4).

c. Formulator's Exemption Statement (EPA Form), if applicable.

d. Evidence of compliance with data compensation requirements of FIFRA sec 3(c)(1)(D). Refer to 40 CFR 152.80-152.99.

2. Within 9 months from receipt of this document you must submit to the Product Manager:

a. Two copies of any required product-specific data (See Table B).

b. Five copies of draft labeling, including the container label and any associated supplemental labeling. Labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 files. The draft label must indicate the intended colors of the final label, clear indication of the front panel of the label, and the intended type sizes of the text.

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[4] If on the Summary Sheet, you commit to develop the data, present arguments that a data requirement is not applicable or should be waived, or submit protocols or modified protocols for Agency review, you must submit a copy of the Summary sheet (and any supporting information) to the Office of Compliance Monitoring, which will be monitoring the data generated in response to this notice. This submission is in addition to responding to the Product Manager, and should be submitted to the Office of Compliance Monitoring at the address given at the end of this section. (Actual studies are not to be submitted to the Office of Compliance Monitoring.)

3. Within the times set forth in Table A, you must submit to the Registration Division all generic data, unless you are eligible for the formulator's exemption. If for any reason any test is delayed or aborted so that the schedule cannot be met, immediately notify the Product Manager and the Office of Compliance Monitoring of the problem, the reasons for the problem, and your proposed course of action.

B. End Use Products containing Trifluralin alone or in combination with Other Active Ingredients.

1. Within 90 days from receipt of this document, you must submit to the Product Manager in the Registration Division:

a. FIFRA Section 3(c)(2)(B) Summary Sheet, with appropriate attachments[4] (EPA Form 8580-1), or the Formulator's Exemption Statement (EPA Form).

b. Confidential Statement of Formula (EPA Form 8570-4).

2. Within 9 months from receipt of this document you must submit to the Product Manager:

a. Five copies of draft labeling, including the container label and any associated supplemental labeling. Labeling should be either typewritten text on 8-1/2 x 11 inch paper or a mockup of the labeling suitable for storage in 8-1/2 x 11 files. The draft labeling must indicate the intended colors of the final label, clear indication of the front panel of the label, and the intended type sizes of the text. End use product labeling must comply specifically with the instructions in Section IV (Regulatory Position and Rationale).

D. Intrastate Products containing Trifluralin either as sole active ingredient or in combination with other active ingredients.

These products are being called in for full Federal registration. Producers of these products are being sent a letter instructing them how to submit an application for registration.

E. Addresses

The required information must be submitted to the following address:

Richard F. Mountfort, PM-23
Registration Division (TS-767C)
Office of Pesticide Programs
Environmental Protection Agency
401 M St., SW
Washington, D.C. 20460

The address for submissions to the Office of Compliance Monitoring is:

Laboratory Data Integrity Program
Office of Compliance Monitoring (EN-342)
Environmental Protection Agency
401 M St., SW
Washington, D.C. 20460.

APPENDIX I

DATA APPENDICES

GUIDE TO TABLES

Tables A and B contain listings of data requirements for the pesticides covered by this Registration Standard.

Table A contains generic data requirements that apply to the pesticide in all products, including data requirements for which a "typical formulation" is the test substance.

Table B contains product-specific data requirements that apply only to a manufacturing use product.

The data tables are generally organized according to the following format:

1. Data Requirement (Column 1). The data requirements are listed in the order in which they appear in 40 CFR Part 158. The reference numbers accompanying each test refer to the test protocols set out in the Pesticide Assessment Guidelines, which are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

2. Test Substance (Column 2). This column lists the composition of the test substance required to be used for the test, as follows:

TGAI = Technical grade of the active ingredient
PAI = Pure active ingredient
PAIRA = Pure active ingredient, radio labeled
TEP = Typical end use formulation
MP = Manufacturing use product
EP = End use product

Any other test substances, such as metabolites, will be specifically named in Column 2 or in footnotes to the table.

3. Use pattern (Column 3). This column indicates the use patterns to which the data requirement applies. Use patterns are the same as those given in 40 CFR Part 158. The following letter designations are used for the given use patterns:

A = Terrestrial, food
B = Terrestrial, non-food
C = Aquatic, food
D = Aquatic, non-food
E = Greenhouse, food
F = Greenhouse, non-food
G = Forestry
H = Domestic outdoor
I = Indoor

4. Does EPA have data? (Column 4). This column indicates one of three answers:

> YES - EPA has data in its files that completely satisfy this data requirement. These data may be cited by other registrants in accordance with data compensation requirements of Part 152, Subpart E.
>
> PARTIALLY - EPA has some data in its files, but such data do not fully satisfy the data requirement. In some cases, the Agency may possess data on one of two required species, or may possess data on one test substance but not all. The term may also indicate that the data available to EPA are incomplete. In this case, when the data are clarified, or additional details of the testing submitted by the original data submitter, the data may be determined to be acceptable. If this is the case, a footnote to the table will usually say so.
>
> NO - EPA either possesses no data which are sufficient to fulfill the data requirement, or the data which EPA does possess are flawed scientifically in a manner that cannot be remedied by clarification or additional information.

5. Bibliographic citation (Column 5). If the Agency has acceptable data in its files, this column lists the identifying number of each study. This normally is the Master Record Identification (MRID) number, but may be a GS number if no MRID number has been assigned. Refer to the Bibliography Appendices for a complete citation of the study.

6. Must additional data be submitted? (Column 6). This column indicates whether the data must be submitted to the Agency. If column 3 indicates that the Agency already has data, this column will usually indicate NO. If column 3 indicates that the Agency has only partial data or no data, this column will usually indicate YES. In some cases, even though the Agency does not have the data, EPA will not require its submission because of the unique characteristics of the chemical; because data on another chemical can be used to fulfill the data requirement; or because the data requirement has been waived or reserved. Any such unusual situations will be explained in a footnote to the table.

7. Timeframe for submission (Column 7). If column 5 requires that data be submitted, this column indicates when the data are to be submitted, based on the issuance date of the Registration Standard. The timeframes are those established either as a result of a previous Data Call-In letter, or standardized timeframes established by PR Notice 85-5 (August 22, 1985).

8. Footnotes (at the end of each table). Self-explanatory.

Data Requirement	Test Substance	Use Patterns	Does EPA Have Data?1/	Bibliographic Citation1/	Must Additional Data be Submitted?	Time Frame for Submission
§158.120 Product Chemistry (Continued)						
Physical and Chemical Characteristics (Continued)						
63-7 - Density, Bulk Density, or Specific Gravity	TGAI	All	N/A	N/A	Yes	6 Months
63-8 - Solubility	TGAI or PAI	All	N/A	N/A	Yes	6 Months
63-9 - Vapor Pressure	PAI	All	N/A	N/A	Yes	6 Months
63-10 - Dissociation constant	PAI	All	N/A	N/A	Yes	6 Months
63-11 - Octanol/water partition coefficient	PAI	All	N/A	N/A	Yes	6 Months
63-12 - pH	TGAI	All	N/A	N/A	Yes	6 Months
63-13 - Stability	TGAI	All	N/A	N/A	Yes	6 Months
Other Requirements:						
64- 1 - Submittal of samples	TGAI/PAI	All	N/A	N/A	No	

1/ Not applicable. Although product chemistry data may have been submitted in the past, the Agency has determined that these data must be resubmitted for each pesticide. New requirements have been introduced and previously submitted data must be updated. Therefore bibliographic citations for the old data are not applicable.

2/ The registrant must submit details of the manufacturing process, including the relative amounts of beginning materials, a description of the equipment used to produce the product, reaction conditions, duration of each step of the process, purification procedures and quality control measures, the name and address of the manufactuerer, producer or supplier of each beginning material used, and a copy of all available technical specifications, data sheets, and other documents in which the manufacturer, producer, or supplier of the beginning material describes its composition and properties.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.120 Product Chemistry - Continued

3/ The registrant mut provide a discussion of each impurity, including any nitrosamines, believed to be present at a level equal to or greater than 0.1% based on knowledge of the beginning materials, all possible chemical reactions and contamination.

4/ The registrant must analyze five (5) or more representative samples for the amount of active ingredient and each impurity present at or greater than 0.1%, using valid analytical methods.

5/ Upper and lower limits for trifluralin, and upper limits for each impurity present at 0.1% must be provided and certified. All nitrosamines must be identified and quantified in six samples each of technical grade and formulation intermediate trifluralin. Two samples must be analyzed shortly after production, 3 months after production and 6 months after production. A validated method sensitive to 0.5 ppm for detecting N-nitroso contaminants must be used. A certified upper limit must be provided on the Confidential Statement of Formula for all nitrosamines found.

6/ The registrant must submit quantitative methods to determine trifluralin and all impurities for which a certified limit is required. Each method must be accompanied by validation studies of the precision and accuracy of the method.

7/ Not required because the technical is a solid at room temperature.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirement	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry					
171-4 - Nature of Residue (Metabolism)					
Plants	PAIRA	Partially	00024731 00026054 00093553 00105720 00105759 00124905 00125299 GS-0179-001	Yes1/	18 Months
Livestock	PAIRA and Plant Metabolites	Partially	00093636 00105690 00105772	Yes2/	18 Months
171-4 - Residue Analytical Method					
Plant residues	TGAI and Metabolites	Yes	00022793 00024248 00047591 00047639 00059532 00067371 00067435 00080320 00105646 00105689 00105695 00105720 00105759 00125303 GS-0179-002	No	
Animal residues	TGAI and Metabolites	No		No3/	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
171-4 - Storage Stability Data	PAI	Partially	00047639 00105716 00105720	Yes4/	24 Months
171-4 - Magnitude of the Residue - Residue Studies for Each Food Use					
Root and Tuber Vegetables Group5/					
Carrots	TEP	Yes	00093554 00033087	No	
Potatoes	TEP	Yes	00022257 00093574 00105733 00105734 00133939	No	
Processed Potato Products (Chips, granules, and dried potatoes)	EP	No		Yes6/	24 Months

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Sugar Beets	TEP	Yes	00057546 00105648 00105666 00105757	No	
Processed products	EP	No		Yes7/	24 Months
Turnips	TEP	Yes	00093554 00033087 00057546 00105648 00105666 00105757	No	
Leaves of Root and Tuber Vegetables Group					
Sugar Beet Tops	TEP	Yes	00105648 00105666 00105757 00057546	No	
Turnips Tops	TEP	Yes	00105724	No	
Bulb Vegetables (Alium spp.) Group8/					
Garlic	TEP	Yes	00105678	No	
Onions	TEP	Yes	00120263	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
Leafy Vegetables (except Brassica) Group[9]					
Celery	TEP	Yes	00093549 00105670	No	
Upland Cress	TEP	No		No[10]	
Brassica Leafy Vegetables Group					
Broccoli	TEP	Yes	00105749 00105650	No	
Brussels sprouts	TEP	Yes	00105749	No	
Cabbage	TEP	Yes	00105749 00105650	No	
Cauliflower	TEP	Yes	00105749	No	
Collards	TEP	Yes	00105724	No	
Kale	TEP	Yes	00105724	No	
Mustard Greens	TEP	Yes	00105724	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Legume Vegetables (Succulent or Dried) Group					
Adzuki Beans	TEP	Yes	00022736 00105669 00105726	No	
Beans, Dried-Type	TEP	Yes	00022376 00105669 00105726	No	
Field Peas (Cowpeas, Black-eyed peas)	TEP	Yes	00105669	No	
Guar Beans	TEP	Yes	00105670	No	
Lima Beans	TEP	Yes	00033086 00105726 00105669	No	
Mung Beans	TEP	Yes	00105670	No	
Peas (Succulent and Dried)	TEP	Yes	00105669 00105755	No	
Snap Beans	TEP	Yes	00022376 00033086 00057547 00105669	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Soybeans	TEP	Yes	00022793 00030932 00067433 00094410 00096361 00104423 00105655 00105669 00105717 00105720 00105725 00105746 00124904 00128308	No	
Processed Food/Feed	EP	No			
Foliage of the Legume Vegetables Group				Yes11/	24 Months
Bean Vines and Hay	TEP	Yes	00022376 00105669	No	
Peas Vines and Hay	TEP	Yes	00105669	No	
Soybean Forage, Hay, and Straw	TEP	Yes	00022793 00030932 00067433 00096361 00105720	No	
Fruiting Vegetables (except Cucurbits) Group					
Peppers	TEP	Yes	00105750	No	
Tomatoes	TEP	Yes	00105726 00105750	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Cucurbit Vegetables Group12/					
Cantaloupes	TEP	Yes	00093555 00105726	No	
Cucumbers	TEP	Yes	00093555	No	
Watermelons	TEP	Yes	00105670	No	
Citrus Fruits Group					
Processed Food/Feed	EP	Partially	00105677	Yes13/	24 Months
Stone Fruits Group14/					
Apricots	TEP	Yes	00105667 00105675	No	
Nectarines	TEP	Yes	00105667 00105675	No	
Peaches	TEP	Yes	00105667 00105675	No	
Plums (Fresh prunes)	TEP	Yes	00105675 00105735	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Small Fruits and Berries Group15/					
Grapes	TEP	Yes	00105678	No	
Tree Nuts Group	TEP	Yes	00105675 00105726	No	
Cereal Grains Group16/					
Barley	TEP	Yes	00070736 00105704	No	
Corn	TEP	Partially	00032811 00105697 00105726	Yes17/	24 Months
Sorghum	TEP	Partially	00105704 00105726	Yes18/	24 Months
Wheat	TEP	Partially	00070736 00105681 00105726	Yes19/	24 Months
Forage, Fodder, and Straw of Cereal Grains Group20/					
Barley Forage, Hay and Straw	TEP	Yes	00070736 00105704	No	
Corn Forage, Fodder and Silage	TEP	Partially	00032811 00105726	Yes21/	24 Months
Sorghum Forage, Fodder, Silage and Hay	TEP	Yes	00105704	No22/	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Wheat forage, hay, and straw	TEP	Yes	00070736 00105681	No23/	
Nongrass Animal Feeds (forage, fodder, straw, and hay) Group24/					
Alfalfa Forage and Hay	TEP	Partially	00093637 00105691 00105726	Yes25/	24 Months
Miscellaneous Commodities					
Asparagus	TEP	Yes	00105696 00105702	No	
Flax	TEP	Partially	00084581	Yes26/	24 Months
Cottonseed	TEP	Partially	00093190 00105669 00105713 00105726 00105729 00105731 00105751 00105759 00105780 00105781 00124904	Yes27/	24 Months
Hops	TEP	Yes	00105678	No	
Mustard seed	TEP	Partially	00067371	No28/	
Okra	TEP	Yes	00105669	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.125 Residue Chemistry - Continued					
Peanuts (Nutmeats, Vines, Hay, and Hulls)	TEP	Partially	00026049 00059531 00067222 00105646	Yes29/	24 Months
Peppermint	TEP	Partially	00105683	Yes30/	24 Months
Rape Seed	TEP	Yes	00047639	No	
Safflower Seed	TEP	Yes	00067371 00105726 00105750	No	
Spearmint	TEP	Yes	00105683	No31/	
Sugarcane	TEP	Partially	00105668 00105674 00105727 00105730	Yes32/	24 Months
Sunflower Seed and Forage	TEP	Partially	00057545 00067371 00067430 00105673	Yes33/	24 Months
171-4 - Magnitude of the Residues in Meat, Milk, Poultry and Eggs	TGAI or Plant Metabolites	Partially	00023105 00080320 00080322 00093634 00093636 00105772	Yes34/	18 Months

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.125 Residue Chemistry - Continued

1/ Registrants must submit data depicting (a) the distribution and nature of residues of [^{14}C] trifluralin (ringlabeled) in mature, fresh and dry corn kernels, and in forage harvested at intervals following an over-the-top spray application at a rate sufficiently high to permit ^{14}C-residue characterization and; (b) the distribution and nature of residues of [^{14}C] trifluralin (ring-labeled) in a mature leafy or Brassica leafy vegetable (such as celery, cabbage, or collards) following a preplant soil application at a rate sufficiently high to permit ^{14}C-residue characterization. Representative samples from the above-described tests must also be analyzed by the enforcement methods to ascertain that all metabolites of concern are detected.

2/ Registrants must submit metabolism studies utilizing ruminants and poultry. Animals must be dosed for three days with ring-labeled [^{14}C] trifluralin at a level sufficient to make residue identification and quantification possible. Milk and eggs must be collected twice daily during the dosage period. Animals must be killed within 24 hours of the final dose. The distribution and characterization of residues must be determined in milk, eggs, liver, kidney, muscle, and fat. Samples from the studies should also be analyzed by the enforcement methods to ascertain that all metabolites of concern are determined.

3/ Presently, no residue analytical methods in animals are necessary. However, depending on the outcome of animal metabolism studies, analytical methods for animal residues may be required by the Agency.

4/ The storage intervals and conditions of storage of samples used to support all established tolerances for residues must be submitted. These data must be accompanied by data depicting the percent decline in residues at the time and under the conditions specified. (No additional stability studies are required for plant commodities stored at room temperature in polyethylene bags in the dark for up to 4 months or frozen for up to 10 months). On receipt of these data, the adequacy of the tolerances will be reevaluated. All residue data requested in this Standard must be accompanied by data regarding storage length and conditions of storage of samples analyzed. These data must be accompanied by data depicting the stability of residues under the conditions and for the time intervals specified, with the exception of plant commodities stored at room temperature in polyethylene bags in the dark for < 4 months or frozen for < 10 months. Since the nature of residues in plants and animals has not been adequately described, if the requested metabolism data indicate the presence of residues of toxicological concern in animal commodities or additional residues of toxicological concern in plant commodities, data depicting the stability of such residues in storage will be required.

5/ A crop group tolerance is not appropriate unless residue data are submitted for radishes, a representative commodity.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.125 Residue Chemistry - Continued

6/ Registrants must submit residue data for processed potato commodities (chips, granules, and dried potatoes) processed from potatoes bearing measurable, weathered residues. Should residues concentrate upon processing, appropriate food/feed additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

7/ Registrants must submit residue data from dehydrated pulp, molasses, and refined sugar, processed from sugar beets bearing measurable, weathered residues. Should residues concentrate in processed products, appropriate food/feed additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

8/ A crop group tolerance is not appropriate unless residue data are submitted for onions (green), a representative commodity.

9/ A crop group tolerance is not appropriate unless residue data are submitted for lettuce (head and leaf) and spinach, representative commodities of this group.

10/ There are no registered uses of trifluralin on upland cress. Within 6 months from the date of issuance of this Standard, registrants must either propose a use, or petition the Agency to revoke the tolerance.

11/ Residues must be determined in meal, hulls, soapstock, crude oil, and refined oil prepared from beans bearing measurable weathered residues. It may be necessary to use exaggerated rates to obtain measurable residues in the raw agricultural commodity (beans). If residues in any of these commodities exceed those found in soybeans, an appropriate food/feed additive tolerance may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

12/ A crop group tolerance is no longer appropriate unless residue data are submitted for summer squash, a respresentative commodity.

13/ Registrants must submit data depicting the residues of trifluralin in dried pulp, oil, molasses, and juice processed from oranges bearing measurable weathered residues. If residues concentrate in any processed commodity, appropriate food/feed additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency future policy with regard to the Delaney Clause and FIFRA.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.125 Residue Chemistry - Continued

14/ Proposed use direction and additional residue data are required for cherries, a representative commodity of this group.

15/ A crop group tolerance is not appropriate unless residue data are submitted for blackberries or another Rubus species, blueberries, cranberries, and strawberries, representative commodities of this group.

16/ The established crop group tolerance (0.05 ppm in or on grain crops except fresh corn and rice grain) is not appropriate because: (a) There are no registered uses for rice, a representative commodity of this group. (b) The use directions are not uniform for the representative commodities of this group. (c) Additional data are required for corn and sorghum representative commodities of this group.

17/ Registrants must submit data depicting (a) residues in or on grain of field corn treated over-the-top with an EC formulation at 1 lb ai/A and harvested at the shortest posttreatment interval consistent with established good agricultural practice. Tests must be conducted in IA, IL, and OH which represent the major corn growing regions of the country (Agricultural Statistics, 1983, p. 32) and; (b) residues in or on wet and dry milling products, including crude and refined oil, processed from field corn grain bearing measurable weathered residues. Exaggerated application rates may be required to obtain measurable residues in field corn grain. If concentration occurs, appropriate food additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

18/ Registrants must submit data depicting residues in flour and starch processed from sorghum grain bearing measurable weathered residues of trifluralin. If residues are found to concentrate in these processed commodities, an appropriate food additive tolerance may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

19/ Registrants must submit data depicting residues in or on milled products (bran, flour, middlings, shorts) processed from wheat grain bearing measurable weathered residues. These data are to be translated to barley. Exaggerated application rates may be needed to obtain measurable residues in the wheat grain. If concentration occurs, appropriate food additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.125 Residue Chemistry - Continued

20/ A crop group tolerance is not appropriate because (a) the use directions are not uniform for the representative commodities of this group; and (b) additional residue data must be submitted are required for corn, a representative commodity of this group.

21/ Registrants must submit data depicting residues in or on forage, fodder, and silage of field corn treated over-the-top with an EC formulation at 1 lb ai/A and harvested at intervals thereafter. Fodder should be sampled at normal harvest. Tests must be conducted in IA, IL, and OH, to represent the major corn-growing regions of the country (Agricultural Statistics, 1983, p. 32). Appropriate pregrazing and prefeeding intervals should be proposed. Also, a tolerance for residues in or on silage must be proposed.

22/ The adequacy of the established tolerance cannot be reassessed at this time because insufficient data were submitted for fodder, silage and hay. However, no data are required because the data requested for corn forage, fodder, and straw will be translated to sorghum. Appropriate pregrazing and prefeeding intervals should be proposed. Tolerance must be proposed for residues in or on sorghum hay and silage.

23/ The available data for wheat and barley straw, considered together, indicate that the tolerance for residues in or on straw should be increased to 0.1 ppm particularly when the low recovery values are taken into account. Also, a tolerance of 0.1 ppm should be proposed for residues in or on wheat hay.

24/ A crop group tolerance is not appropriate unless residue data are submitted for alfalfa, a representative crop (refer to the following section on alfalfa for details of data gaps) and clover, representative commodities of this group.

25/ Registrants must submit data depicting (a) residues in or on alfalfa forage and alfalfa hay (dried to 10% water content) following a single postemergence application to established alfalfa with a G and EC formulation (in separate tests) at 1 lb ai/A. Samples must be obtained on the day of treatment and at regular intervals thereafter to elucidate the pattern of residue decline (this information is needed to determine the necessity of a PHI or pregrazing interval). Tests must be conducted in CA, MN, and NY or PA since these States represent the major U.S. alfalfa hay production regions (Agricultural Statistics, 1984, p. 247); and (b) data reflecting residues in or on seed processed from alfalfa hay bearing measurable weathered residues (use exaggerated rates, if necessary, to obtain measurable residues). If the concentration of residues in alfalfa seed is higher than in hay, an appropriate food or feed additive tolerance must be proposed. Since multiple cuttings may be obtained from established alfalfa fields, the registrant must propose a label amendment specifying the maximum number of applications permitted per year.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.125 Residue Chemistry - Continued

26/ Registrants must submit (a) residue data for flax straw harvested after application (in separate tests) of a G and EC formulation at 1 lb ai/A as a preplant broadcast application. Tests must be conducted in ND or SD, States which represent the major U.S. flax production region (Agricultural Statistics, 1983, p. 118). Alternatively, a feeding restriction may be proposed and; (b) residue data for flax (linseed) meal and hulls derived from flax seed bearing measurable, weathered residues. Should concentrations of residues occur, appropriate feed additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA. (Data required for other oilseed crops may be translated to processed commodities of flax.)

27/ Registrants must submit data depicting residues in or on meal, hulls, soapstock, and crude and refined oil processed from seed bearing measurable residues. It may be necessary to use exaggerated rates to obtain measurable residues in the seed. If concentration occurs, appropriate food/feed additive tolerances may indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA. And (b) residues of trifluralin in or on cotton forage harvested at intervals following a preplant broadcast of an EC at 2 lb ai/A from tests conducted in MS and TX and following a postemergence broadcast application of a G and (in separate tests) an EC formulation at 1 lb ai/A. Samples from the postemergence broadcast application must be collected on the day of treatment and at intervals thereafter. Postemergence tests must be conducted in AZ, CA, MS, and TX which represent the major cotton-growing regions of the country (Agricultural Statistics, 1983, p. 62). A tolerance must be proposed. Alternatively, a grazing restriction may be proposed and no additional data submitted.

28/ A tolerance has neither been proposed nor established for residues of trifluralin in or on mustard seeds. The registrant must eliminate the use directions for mustard grown for seed on the relevant federal labels, or propose a tolerance for residues in or on mustard seed.

29/ Registrants must submit data depicting (a) residues in or on peanut vines and hay collected at intervals following a preemergence broadcast application of the 10% WP or a preplant (immediately prior to planting) broadcast application of the 4 lb/gal EC formulation at 0.75 lb ai/A. Tests must be conducted in GA, TX, and FL, which represent the major U.S. peanut product regions (Agricultural Statistics, 1983, p. 126). Pregrazing and and prefeeding intervals must be proposed. Upon receipt of the requested data, separate tolerances for residues in or on peanut vines and hay must be established and the tolerance for residues in or on members of the now-obsolete forage legumes group should be deleted. Alternatively, grazing and feeding restrictions may be proposed and no residue data submitted and; (b) residues in meal, crude and refined oil, and soapstock processed from nutmeats bearing measurable weathered residues. Use of exaggerated application rates may be required to obtain measurable weathered residues in nutmeats. If residues are found to concentrate, appropriate food/feed additive tolerances must be proposed.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.125 Residue Chemistry - Continued

30/ Registrants must submit processing data for peppermint oil and spent hay derived from peppermint hay bearing measurable, weathered residues. Exaggerated rates may be required to obtain detectable residues of trifluralin. If residues concentrate in spent peppermint hay, an appropriate feed additive tolerance may be indicated. Establishment of such a tolerance will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

31/ Registrants must submit processing data for spearmint oil and spent hay derived from spearmint hay bearing measurable, weathered residues. Exaggerated rates may be required to obtain detectable residues of trifluralin. If residues concentrated in spent spearmint hay, an appropriate feed additive tolerance may be indicated. Establishment of such a tolerance with depend on the Agency's future policy with regard to the Delaney Clause and FIFRA. However, no data are required because data derived from peppermint oil and spent hay processing will be translated to spearmint.

32/ Registrants must submit data depicting (a) residues in or on molasses, refined sugar and bagasse processed from cane bearing measurable weathered residues. Use of exaggerated application rates may be necessary to obtain measurable residues in cane. If concentration occurs, appropriate food/feed additive tolerances must be proposed and; (b) residues in or on sugarcane forage harvested on the day of and at intervals following a layby application with the 4 or 5 lb/gal EC formulation at 2 lbs ai/A. Tests must be conducted in TX and LA. A tolerance must be proposed for residues in or on forage; alternatively, the registrant may propose a grazing restriction and submit no data.

33/ Registrants must submit (a) data depicting residues of trifluralin in or on sunflower forage harvested at intervals following a preplant application of a G and, in separate tests, an EC formulation at 1 lb ai/A. Tests must be conducted in ND and MN, which represent the major sunflower production region of the U.S. (Agricultural Statistics, 1983, p. 133). A tolerance must be proposed; alternatively, a grazing restriction may be proposed and no data submitted and; (b) residue data from sunflower meal, hulls, crude oil, and refined oils processed from sunflower seeds bearing measurable, weathered residues. If residues are shown to concentrate upon processing, then appropriate food/feed additive tolerances may be indicated. Establishment of such tolerances will depend on the Agency's future policy with regard to the Delaney Clause and FIFRA.

34/ The nature of the residue in animals (including meat, milk, poultry and eggs) is not adequately understood. Presently, no tolerances exist for residues of trifluralin in animal products. On receipt of the data requested in the section entitled "Nature of Residue (Metabolism) Livestock[4]/" the adequacy of the residue data for animal products will be assessed and, if appropriate, the need for any proposals for tolerances for residues in animal products will be determined.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.130 Environmental Fate						
DEGRADATION STUDIES-LAB:						
161-1 - Hydrolysis	TGAI or PAIRA	A,B,H,D	Yes	00131135	No1/	
Photodegradation						
161-2 - In water	TGAI or PAIRA	A,B,H,D	No		Yes	9 Months
161-3 - On soil	TGAI or PAIRA	A,B,H	No		Yes	9 Months
161-4 - In Air	TGAI or PAIRA	A,B,H	No		No	
METABOLISM STUDIES-LAB:						
162-1 - Aerobic Soil	TGAI or PAIRA	A,B,H	No		Yes	27 Months
162-2 - Anaerobic Soil	TGAI or PAIRA	A,B,H	No		Yes2/	27 Months
162-3 - Anaerobic Aquatic	TGAI or PAIRA	A,B,H,D	No		Yes	27 Months
162-4 - Aerobic Aquatic	TGAI or PAIRA	A,B,H,D	No		Yes	27 Months
MOBILITY STUDIES:						
163-1 - Leaching and Adsorption/Desorption	TGAI or PAIRA	A,B,H,D	No		Yes	12 Months
163-2 - Volatility (Lab)	TEP	A,B,H	No		Yes	12 Months
163-3 - Volatility (Field)	TEP	A,B,H	No		Yes3/	15 Months

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.130 Environmental Fate - Continued						
DISSIPATION STUDIES-FIELD:						
164-1 - Soil	TEP	A,B,H	No		Yes	27 Months
164-2 - Aquatic (Sediment)	TEP	A,B,H,D	No		Yes	27 Months
164-3 - Forestry	TEP	N/A4/				
164-4 - Combination and Tank Mixes		N/A4/				
165-5 - Soil, Long-term	TEP	A,B,H	No		Yes5/	50 Months
ACCUMULATION STUDIES:						
165-1 - Rotational Crops (Confined)	PAIRA	A,B,H	No		Yes	39 Months
165-2 - Rotational Crops (Field)	TEP	A,B,H	No		Yes6/	50 Months
165-3 - Irrigated Crops	TEP	A,B,H,D	No		Yes	39 Months
165-4 - In Fish	TGAI or PAIRA	A,B,H,D	No		Yes	12 Months
165-5 - In Aquatic Nontarget Organisms	TEP	A,B,H,D	No		Yes	12 Months

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.130 Environmental Fate - Continued

1/ Trifluralin is in a class of immobile chemicals which are unlikely to leach to ground water.

2/ An anaerobic soil metabolism study is not required if an acceptable anaerobic aquatic metabolism study is submitted on time.

3/ This data requirement is deferred pending results from the laboratory volatility data.

4/ Not required for this chemical.

5/ Data requirement is contingent upon the results of the aerobic soil metabolism/terrestrial field dissipation studies.

6/ Data requirement is deferred pending results from the confined accumulation studies on rotational crops.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.135 Toxicology						
ACUTE TESTING:						
81-1 - Acute Oral Toxicity - Rat	TGAI	A,B,H	Yes	00105776 00157486	No	
81-2 - Acute Dermal Toxicity - Rabbit	TGAI	A,B,H	Yes	00105776 00157482	No	
81-3 - Acute Inhalation Toxicity - Rat	TGAI	A,B,H	Yes	00085087 00062921 00155261	No	
81-7 - Delayed Neurotoxicity - Hen	TGAI		N/A1/			
SUBCHRONIC TESTING:						
82-1 - 90-Day Feeding: - Rodent, and	TGAI	A,B,H	Yes	00083650 00134326	No2/	
- Nonrodent (Dog)		A,B,H	Yes	00083650 00134326	No2/	
82-2 - 21-Day Dermal - Rabbit	TGAI		N/A3/			
82-3 - 90-Day Dermal - Rabbit	TGAI		N/A3/			
82-4 - 90-Day Inhalation: - Rat	TGAI		N/A3/			
82-5 - 90-Day Neurotoxicity: - Hen	TGAI		N/A1/			
- Mammal						

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.135 Toxicology - Continued						
CHRONIC TESTING:						
83-1 - Chronic Toxicity - 2 species:	TGAI	A,B,H				
- Rodent, and			Partially	00044337 00044338	Yes4/	
- Nonrodent (Dog)			Yes	00083645	No	
83-2 - Oncogenicity - 2 species:	TGAI	A,B,H				
- Rat (preferred), and			Yes	00044337	No	
- Mouse (preferred)			Yes	00044338	No	
83-3 - Teratogenicity - 2 species:	TGAI	A,B,H				
- Rat			Yes	00152419	No	
- Rabbit			Yes	00152420 00152421	No	
83-4 - Reproduction - Rat 2-generation	TGAI	A,B,H	Yes	00083645 GS-0179-009 00162543	No	
MUTAGENICITY TESTING:						
84-2 - Gene Mutation (Ames Test)	TGAI	A,B,H	Yes	00126661	No	
84-2 - Structural Chromosomal Aberration	TGAI	A,B,H	Yes	00129059	No	
84-4 - Other Genotoxic Effects	TGAI	A,B,H	Yes	00126661 00129059	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.135 Toxicology - Continued						
SPECIAL TESTING						
85-1 - General Metabolism	PAI or PAIRA	A,B,H	No		Yes5/	24 Months
85-2 - Dermal Penetration	Choice	A,B,H	No		Yes	12 Months
86-1- Domestic Animal	Choice	A,B,H	Yes	00105776 00137468 00085087 00062921 00138224	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.135 Toxicology - Continued

1/ This study is not required because trifluralin is not an organophosphate or carbamate which will cause acetyl cholinesterase depression, nor is it structurally related to a substance that induces neurotoxicity.

2/ The data submitted are considered Core Supplementary; however, these studies need not be repeated because chronic studies are available.

3/ Not applicable to exposure conditions.

4/ Additional data in the rat is required to resolve the adverse effects on the kidney since a NOEL for non-oncogenic kidney effects was not demonstrated in the 1980 Eli Lilly study. Dosing levels should overlap the 1980 Eli Lilly rat study, but include at least one dose lower than 813 ppm (the lowest dose tested). A 2-year chronic feeding study is not necessarily required to elucidate these effects. Registrants are requested to consult with the Agency regarding a suitable protocol for this study (particularly regarding the duration of the study).

5/ Detailed metabolism of trifluralin in mammals sufficient to isolate and characterize metabolites which are (1) excreted via the urine, (2) formed in the urinary tract, (3) and/or abosrbed via the urinary tract are required.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.140 Reentry Protection						
132-1 - Foliar Dissipation	TEP		N/A1/			
132-1 - Soil Dissipation	TEP		N/A1/			
133-3 - Dermal Exposure	TEP		N/A1/			
133-4 - Inhalation Exposure	TEP		N/A1/			
§158.142 Spray Drift						
201-1 - Droplet Size Spectrum	TEP	A,B	No		Yes2/	6 Months
202-1 - Drift Field Evaluation	TEP	A,B	No		Yes2/	6 Months

1/ Not applicable to exposure conditions.

2/ The Agency is requiring droplet spectrum and spray drift field evaluation tests due to the toxicity of the chemical to certain aquatic organisms and its methods of application (other than soil incorporation). The droplet spectrum study is to be performed to reflect the nozzle and other equipment types to be used in the application of trifluralin to crops and non-crops. The spray drift field evaluation is to be performed to reflect the application equipment, use pattern, and typical locations of use, which includes different weather factors, in the application of trifluralin for these uses. The spray drift droplet spectrum and field evaluation may be done together in order to evaluate the droplet spectrums that are associated with actual field use patterns.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.145 Wildlife and Aquatic Organisms						
AVIAN AND MAMMALIAN TESTING						
71-1 - Avian Acute Oral Toxicity	TGAI	A,B	Yes	00137573 GS-9999-001	No	
71-2 - Avian Subacute Dietary Toxicity						
- Upland Game Bird, and	TGAI	A,B	Yes	00138857	No	
- Waterfowl	TGAI	A,B,	Yes	00138858	No	
71-3 - Wild Mammal Toxicity			N/A[1]			
71-4 - Avian Reproduction						
- Upland Game Bird, and	TGAI	A,B	Yes	00131132 00131134	No	
- Waterfowl	TGAI	A,B	Yes	00131132 00131134	No	
71-5 - Simulated Field Testing						
- Mammals and Birds	TEP		N/A[1]			
- Actual Field Testing						
- Mammals and Birds	TEP		N/A[1]			

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Patterns	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.145 Wildlife and Aquatic Organisms - Continued						
AQUATIC ORGANISMS TESTING						
72-1 - Freshwater Fish Toxicity						
- Cold water Fish Species, and	TGAI	A,B	Yes	GS0144-012	No	
- Warm water Fish Species	TGAI	A,B,	Yes	GS0144-012	No	
72-2 - Acute Toxicity to Freshwater Invertebrates	TGAI	A,B	Yes	GS0144-012	No	
72-3 - Acute Toxicity to Estuarine and Marine Organisms						
- Fish	TGAI	A,B	No		Yes2/	12 Months
- Mollusk	TGAI	A,B	No		Yes2/	12 Months
- Shrimp	TGAI	A,B	No		Yes2/	12 Months
72-4 - Fish Early Life Stage, and						
- Aquatic Invertebrate Life-Cycle	TGAI	A,B	Yes	05008271	No	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.145 Wildlife and Aquatic Organisms - Continued						
72-5 - Fish - Life-Cycle	TGAI	A,B	Yes	05008271	No	
72-6 - Aquatic Organism Accumulation - Crustacean - Fish - Insect Nymph - Mollusk	TGAI, PAI or Degradation Product	A,B	No		Reserved3/	
72-7 - Simulated Field Testing - Aquatic Organism	TEP	A,B	Yes	00155972 00155973 00155974 00155975	No	
- Actual Field Testing - Aquatic Organisms	TEP	A,B	Partially	00155978	Yes4/	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.155 Nontarget Insect						
NONTARGET INSECT TESTING - AQUATIC INSECTS:						
142-1 - Acute toxicity to aquatic insects			No		(Reserved)3/	
142-1 - Aquatic insect life-cycle study			No		(Reserved)3/	
142-3 - Simulated or actual field testing for aquatic insects			No		(Reserved)3/	
143-1 thru 143-3 - NONTARGET INSECT TESTING - PREDATORS AND PARASITES			No		(Reserved)3/	

1/ Since acute contact tests show low toxicity to bees, no further testing is required.
2/ This requirement is reserved pending development of test methodology.
3/ This requirement is reserved pending further evaluation to determine what and when data should be required, and to develop appropriate test methods.

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

Data Requirements	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.155 Nontarget Insect						
NONTARGET INSECT TESTING - POLLINATORS:						
141-1 - Honeybee acute contact toxicity	TGAI	A,B,H	Yes	00028772 05001991	No	
141-2 - Honeybee - toxicity of residues on foliage	TEP	A,B,H	No		No[1]	
141-4 - Honeybee subacute feeding study					(Reserved)[2]	
141-5 - Field testing for pollinators	TEP	A,B,H	No		No[1]	

TABLE A
GENERIC DATA REQUIREMENTS FOR TRIFLURALIN

§158.145 Wildlife and Aquatic Organisms - Continued

1/ The low toxicity of trifluralin to avian species does not support the need for these data.

2/ Marine/estuarine toxicity data are required to support uses in coastal areas (i.e., cotton, soybeans, sugarcane, rights-of-way, etc.)

3/ Aquatic organism accumulation is reserved pending receipt of pertinent environmental fate information.

4/ Aquatic field testing is required because of the high toxicity and expected exposure in aquatic habitat via soil run-off. Use patterns of particular concern include corn, soybeans, cotton, sorghum, small grains and peanuts. The Data Call-In Notice for trifluralin dated August 25, 1982, required registrants of pesticide products containing trifluralin to submit field monitoring data to the Agency. Based upon the results of this monitoring study, the Agency will now require monitoring of trifluralin residues in fish from ponds, streams and rivers in high use areas throughout the United States. An acceptable protocl must be submitted for evaluation and approval within 90 days of the issuance of this standard. The protocol must, at a minimum, address multi-year design (several years with sampling during the four seasons) and rationale for regional test site selection.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRIFLURALIN

Data Requirements	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.120 Product Chemistry						
Product Identity:						
61-1 - Product Identity and Disclosure of of Ingredients	MP	All	N/A	N/A	Yes	6 Months
61-2 - Description of Beginning Materials and Manufacturing Process	MP	All	N/A	N/A	Yes1/	6 Months
61-3 - Discussion of Formation of Impurities	MP	All	N/A	N/A	Yes2/	6 Months
Analysis and Certification of Product Ingredients						
62-1 - Preliminary Analysis	MP	All	N/A	N/A	Yes3/	12 Months
62-2 - Certification of Limits	MP	All	N/A	N/A	Yes4/	12 Months
62-3 - Analytical Methods to Verify Certified Limit	MP	All	N/A	N/A	Yes5/	12 Months
Physical and Chemical Characteristics						
63-2 - Color	MP	All	N/A	N/A	Yes	6 Months
63-3 - Physical State	MP	All	N/A	N/A	Yes	6 Months
63-4 - Odor	MP	All	N/A	N/A	Yes	6 Months

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRIFLURALIN

Data Requirements	Test Substance	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.120 Product Chemistry (Continued)						
Physical and Chemical Characteristics (Continued)						
63-7 - Density, Bulk Density, or Specific Gravity	MP	All	N/A	N/A	Yes	6 Months
63-12 - pH	MP	All	N/A	N/A	Yes	6 Months
63-14 - Oxidizing or Reducing Action	MP	All	N/A	N/A	Yes	6 Months
63-15 - Flammability	MP	All	N/A	N/A	No	
63-16 - Explodability	MP	All	N/A	N/A	Yes	6 Months
63-17 - Storage Stability	MP	All	N/A	N/A	Yes	15 Months
63-18 - Viscosity	MP	All	N/A	N/A	No	
63-19 - Miscibility	MP	All	N/A	N/A	No	
63-20 - Corrosion Characterictics	MP	All	N/A	N/A	Yes	15 Months
Other Requirements:						
64- 1 - Submittal of samples	MP	All	N/A	N/A	No	

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRIFLURALIN

1/ The registrant must submit details of the manufacturing process, including the relative amounts of beginning materials, a description of the equipment used to produce the product, reaction conditions, the duration of each step of the proces, purification procedures and quality control measures, the name and address of the manufacturer, producer or supplier of each beginning material used, and a copy of all available technical specifications, data sheets, and other documents in which the manufacturer, producer, or supplier of the beginning material describes its composition and properties.

2/ For all manufacturing use products and formulation intermediates, the registrant must provide a discussion of each impurity, including any N-nitroso compounds, believed to be present at levels equal to or greater than 0.1%, based on knowledge of the beginning materials, all possible chemical reactions and any contamination.

3/ For all manufacturing use products and formulation intermediates, registrants must analyze 5 or more representative samples for the amount of active ingredient and each impurity present for which a certified limit is required. Valid analytical methods must be used.

4/ Upper and lower limits for trifluralin and for each intentially added inert ingredient, and upper limits for each impurity present at 0.1% (w/w) must be provided and certified. Two samples of each must be analyzed shortly after production, 3 months after production and 6 months after production. A validated method sensitive to 0.5 ppm of N-nitroso compounds must be used. An upper limit must be provided and certified for all N-nitroso compounds found.

5/ The registrant must submit quantitative methods to determine trifluralin and all impurities and inerts for which a certified limit is required). Each method must be accompanied by validation studies of the precision and accuracy of the method.

NOTE: No registrants of trifluralin manufacturing-use products have submitted adequate product chemistry data.

TABLE B
PRODUCT SPECIFIC DATA REQUIREMENTS FOR MANUFACTURING-USE PRODUCTS CONTAINING TRIFLURALIN

Data Requirements	Use Pattern	Does EPA Have Data?	Bibliographic Citation	Must Additional Data be Submitted?	Time Frame for Submission
§158.135 Toxicology					
ACUTE TESTING					
81-1 - Acute Oral Toxicity - Rat	MP	Yes	00105776	No	
81-2 - Acute Dermal Toxicity	MP	Yes	00105776	No	
81-3 - Acute Inhalation Toxicity - Rat	MP	Yes	00085087 00062921	No	
81-4 - Primary Eye	MP	Yes	00036607	No	
81-5 - Primary Dermal	MP	Yes	00036607	No	
81-6 - Dermal Sensitization - Guinea Pig	MP	Yes	00137468 00138224	No	

APPENDIX II

LABELING APPENDICES

SUMMARY-1

LABEL CONTENTS

40 CFR 162.10 requires that certain specific labeling statements appear at certain locations on the label. This is referred to as format labeling. Specific label items listed below are keyed to the table at the end of this Appendix.

Item 1. PRODUCT NAME - The name, brand or trademark is required to be located on the front panel, preferably centered in the upper part of the panel. The name of a product will not be accepted if it is false or misleading.

Item 2. COMPANY NAME AND ADDRESS - The name and address of the registrant or distributor is required on the label. The name and address should preferably be located at the bottom of the front panel or at the end of the label text.

Item 3. NET CONTENTS - A net contents statement is required on all labels or on the container of the pesticide. The preferred location is the bottom of the front panel immediately above the company name and address, or at the end of the label text. The net contents must be expressed in the largest suitable unit, e.g., "1 pound 10 ounces" rather than "26 ounces." In addition to English units, net contents may be expressed in metric units. [40 CFR 162.10(d)]

Item 4. EPA REGISTRATION NUMBER - The registration number assigned to the pesticide product must appear on the label, preceded by the phrase "EPA Registration No.," or "EPA Reg. No." The registration number must be set in type of a size and style similar to other print on that part of the label on which it appears and must run parallel to it. The registration number and the required identifying phrase must not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency. [40 CFR 162.10(e)]

Item 5. EPA ESTABLISHMENT NUMBER - The EPA establishment number, preceded by the phrase "EPA Est." is the final establishment at which the product was produced, and may appear in any suitable location on the label or immediate container. It must also appear on the wrapper or outside container of the package if the EPA establishment number on the immediate container cannot be clearly read through such wrapper or container. [40 CFR 162.10(f)]

Item 6A. INGREDIENTS STATEMENT - An ingredients statement is required on the front panel. The ingredients statement must contain the name and percentage by weight of each active ingredient and the total percentage by weight of all inert ingredients. The preferred location is immediately below the product name. The ingredients statement must run parallel with, and be clearly distinguished from, other text on the panel. It must not be placed in the body of other text. [40 CFR 162.10(g)]

Item 6B. POUNDS PER GALLON STATEMENT - For liquid agricultural formulations, the pounds per gallon of active ingredient must be indicated on the label.

Item 7. FRONT LABEL PRECAUTIONARY STATEMENTS - Front panel precautionary statements must be grouped together, preferably within a block outline. The table below shows the minimum type size requirements for various size labels.

Size of Label on Front Panel in Square Inches	Signal Word Minimum Type Size All Capitals	"Keep Out of Reach of Children" Minimum Type Size
5 and under	6 point	6 point
above 5 to 10	10 point	6 point
above 10 to 15	12 point	8 point
above 15 to 30	14 point	10 point
over 30	18 point	12 point

Item 7A. CHILD HAZARD WARNING STATEMENT - The statement "Keep Out of Reach of Children" must be located on the front panel above the signal word except where contact with children during distribution or use is unlikely. [40 CFR 162.10(h)(1)(ii)]

Item 7B. SIGNAL WORD - The signal word (DANGER, WARNING, or CAUTION) is required on the front panel immediately below the child hazard warning statement. [40 CFR 162.10 (h)(1)(i)]

Item 7C. SKULL & CROSSBONES AND WORD "POISON" - On products assigned a toxicity Category I on the basis of oral, dermal, or inhalation toxicity, the word "Poison" shall appear on the label in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word POISON. [40 CFR 162.10(h)(1)(i)]

Item 7D. STATEMENT OF PRACTICAL TREATMENT - A statement of practical treatment (first aid or other) shall appear on the label of pesticide products in toxicity Categories I, II, and III. [40 CFR 162.10(h)(1)(iii)]

Item 7E. REFERRAL STATEMENT - The statement "See Side (or Back) Panel for Additional Precautionary Statements" is required on the front panel for all products, unless all required precautionary statements appear on the front panel. [40 CFR 162.10(h)(1)(iii)]

Item 8. SIDE/BACK PANEL PRECAUTIONARY LABELING - The precautionary statements listed below must appear together on the label under the heading "PRECAUTIONARY STATEMENTS." The preferred location is at the top of the side or back panel preceding the directions for use, and it is preferred that these statements be surrounded by a block outline. Each of the three hazard warning statements must be headed by the appropriate hazard title. [40 CFR 162.10(h)(2)].

Item 8A. HAZARD TO HUMANS AND DOMESTIC ANIMALS - Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. [40 CFR 162.10(h)(2)(i)]

Item 8B. ENVIRONMENTAL HAZARD - Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury, or damage. [40 CFR 162.10(h)(2)(ii)]

Item 8C. PHYSICAL OR CHEMICAL HAZARD - FLAMMABILITY Precautionary statements relating to flammability of a product are required to appear on the label if it meets the criteria in the PHYS/CHEM Labeling Appendix. The requirement is based on the results of the flashpoint determinations and flame extension tests required to be submitted for all products. These statements are to be located in the side/back panel precautionary statements section, preceded by the heading "Physical/Chemical Hazards." Note that no signal word is used in conjunction with the flammability statements.

Item 9A. RESTRICTED USE CLASSIFICATION - FIFRA sec. 3(d) requires that all pesticide formulations/uses be classified for either general or restricted use. Products classified for restricted use may be limited to use by certified applicators or persons under their direct supervision (or may be subject to other restrictions that may be imposed by regulation).

In the Registration Standard, the Agency has (1) indicated certain formulations/uses are to be restricted (Section IV indicates why the product has been classified for restricted use); or (2) reserved any classification decision until appropriate data are submitted.

The Regulatory Position and Rationale states whether products containing this active ingredient are classified for restricted use. If they are restricted the draft label(s) submitted to the Agency as part of your application must reflect this determination (see below).

If you do not believe that your product should be classified for restricted use, you must submit any information and rationale with your application for reregistration. During the Agency's review of your application, your proposed classification determination will be evaluated in accordance with the provisions of 40 CFR 162.11(c). You will be notified of the Agency's classification decision.

Classification Labeling Requirements

If your product has been classified for restricted use, the following label requirements apply:

1. All uses restricted.

a. The statement "Restricted Use Pesticide" must appear at the top of the front panel of the label. The statement must be set in type of the same minimum size as required for human hazard signal word (see table in 40 CFR 162.10(h)(1)(iv)

b. Directly below this statement on the front panel, a summary statement of the terms of restriction must appear (including the reasons for restriction if specified in Section I). If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's Certification."

2. Some but not all uses restricted. If the Regulatory Position and Rationale states that some uses are classified for restricted use, and some are unclassified, several courses of action are available:

a. You may label the product for Restricted use. If you do so, you may include on the label uses that are unrestricted, but you may not distinguish them on the label as being unrestricted.

b. You may delete all restricted uses from your label and submit draft labeling bearing only unrestricted uses.

c. You may "split" your registration, i.e., register two separate products with identical formulations, one bearing only unrestricted uses, and the other bearing restricted uses. To do so, submit two applications for reregistration, each containing all forms and necessary labels. Both applications should be submitted simultaneously. Note that the products will be assigned separate registration numbers.

Item 9B. MISUSE STATEMENT - All products must bear the misuse statement, "It is a violation of Federal law to use this product in a manner inconsistent with its labeling." This statement appears at the beginning of the directions for use, directly beneath the heading of that section.

Item 10A. REENTRY STATEMENT - If a reentry interval has been established by the Agency, it must be included on the label. Additional worker protection statements may be required in accordance with PR Notice 83-2, March 29, 1983.

Item 10B. STORAGE AND DISPOSAL BLOCK - All labels are required to bear storage and disposal statements. These statements are developed for specific containers, sizes, and chemical content. These instructions must be grouped and appear under the heading "Storage and Disposal" in the directions for use. This heading must be set in the same type sizes as required for the child hazard warning. Refer to Appendix II, STOR, PEST/DIS, and CONT/DIS to determine the storage and disposal instructions appropriate for your products.

Item 10C. DIRECTIONS FOR USE - Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment. [40 CFR 162.10]

COLLATERAL LABELING

Bulletins, leaflets, circulars, brochures, data sheets, flyers, or other written or graphic printed matter which is referred to on the label or which is to accompany the product are termed collateral labeling. Such labeling may not bear claims or representations that differ in substance from those accepted in connection with registration of the product. It should be made part of the response to this notice and submitted for review.

SUMMARY-6

LABELING REQUIREMENTS OF THE FIFRA, AS AMENDED

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
1	Product name	All products	Front panel	Center front panel	
2	Company name and address	All products	None	Bottom front panel or end of label text	If registrant is not the producer, must be qualified by "Packed for . . . ," "Distributed by. . . ," etc.
3	Net contents	All products	None	Bottom front panel or end of label text	May be in metric units in addition to U.S. units
4	EPA Reg. No.	All products	None	Front panel	Must be in similar type size and run parallel to other type.
5	EPA Est. No.	All products	None	Front panel, immediately before or following Reg. No.	May appear on the container instead of the label.
6A	Ingredients statement	All products	Front panel	Immediately following product name	Text must run parallel with other text on the panel.
6B	Pounds/gallon statement	Liquid products where dosage given as lbs. ai/unit area	Front panel	Directly below the main ingredients statement	
7	Front panel precautionary statements	All products	Front panel		All front panel precautionary statements must be grouped together, preferably blocked.
7A	Keep Out of Reach of Children (Child hazard warning)	All products	Front panel	Above signal word	Note type size requirements.
7B	Signal word	All products	Front panel	Immediately below child hazard warning	Note type size requirements.

SUMMARY-7

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
7C	Skull & crossbones and word POISON (in red)	All products which are Category I based on oral, dermal, or inhalation toxicity	Front panel	Both in close proximity to signal word	
7D	Statement of Practical Treatment or First Aid	All products in Categories I, II, and III	Category I: Front panel unless referral statement is used. Others: Grouped with side panel precautionary statements.	Front panel for all.	
7E	Referral statement	All products where precautionary labeling appears on other than front panel.	Front panel		
8	Side/back panel precautionary statements	All products	None	Top or side of back panel preceding directions for use	Must be grouped under the headings in 8A, 8B, and 8C; preferably blocked.
8A	Hazards to humans and domestic animals	All products in Categories I, II, and III	None	Same as above	Must be preceded by appropriate signal word.
8B	Environmental hazards	All products	None	Same as above	Environmental hazards include bee caution where applicable.

SUMMARY-8

ITEM	LABEL ELEMENT	APPLICABILITY OF REQUIREMENT	PLACEMENT ON LABEL		COMMENTS
			REQUIRED	PREFERRED	
8C	Physical or chemical hazards	All pressurized products, others with flash points under 150°F	None	Same as above	Refer to Appendix II guide PHYS/CHEM
9A	Restricted block	All restricted products	Top center of front panel	Preferably blocked	Includes a statement of the terms of restriction. The words "RESTRICTED USE PESTICIDE" must be same type size as signal word.
9B	Misuse statement	All products	Immediately following heading of directions for use		Required statement is: "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."
10A	Reentry statement	PR Notice 83-2 or as determined by the Agency	In the directions for use	Immediately after misuse statement	
10B	Storage and disposal block	All products	In the directions for use	Immediately before specific directions for use or at the end of directions for use	Must be set apart and clearly distinguishable from from other directions for use. Refer to Appendix II guides STOR, CONT/DIS, and PEST/DIS for further information and required statements.
10C	Directions for use	All products	None	None	May be in metric as well as U.S. units

§162.10 Labeling requirements.

(a) General--(1) Contents of the label. Every pesticide product shall bear a label containing the information specified by the Act and the regulations in this Part. The contents of a label must show clearly and prominently the following:

(i) The name, brand, or trademark under which the product is sold as prescribed in paragraph (b) of this section;

(ii) The name and address of the producer, registrant, or person for whom produced as prescribed in paragraph (c) of this section;

(iii) The net contents as prescribed in paragraph (d) of this section;

(iv) The product registration number as prescribed in paragraph (e) of this section;

(v) The producing establishment number as prescribed in paragraph (f) of this section;

(vi) An ingredient statement as prescribed in paragraph (g) of this section;

(vii) Warning or precautionary statements as prescribed in paragraph (h) of this section;

(viii) The directions for use as prescribed in paragraph (i) of this section; and

(ix) The use classification(s) as prescribed in paragraph (j) of this section.

(2) Prominence and legibility. (i) All words, statements, graphic representations, designs or other information required on the labeling by the Act or the regulations in this part must be clearly legible to a person with normal vision, and must be placed with such conspicuousness (as compared with other words, statements, designs, or graphic matter on the labeling) and expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

(ii) All required label text must:

(A) Be set in 6-point or larger type;

(B) Appear on a clear contrasting background; and

(C) Not be obscured or crowded.

(3) Language to be used. All required label or labeling text shall appear in the English language. However, the Agency may require or the applicant may propose additional text in other languages as is considered necessary to protect the public. When additional text in another language is necessary, all labeling requirements will be applied equally to both the English and other-language versions of the labeling.

(4) Placement of Label--(i) General. The label shall appear on or be securely attached to the immediate container of the

pesticide product. For purposes of this Section, and the misbranding provisions of the Act, "securely attached" shall mean that a label can reasonably be expected to remain affixed during the foreseeable conditions and period of use. If the immediate container is enclosed within a wrapper or outside container through which the label cannot be clearly read, the label must also be securely attached to such outside wrapper or container, if it is a part of the package as customarily distributed or sold.

(ii) Tank cars and other bulk containers--(A) Transportation. While a pesticide product is in transit, the appropriate provisions of 49 CFR Parts 170-189, concerning the transportation of hazardous materials, and specifically those provisions concerning the labeling, marking and placarding of hazardous materials and the vehicles carrying them, define the basic Federal requirements. In addition, when any registered pesticide product is transported in a tank car, tank truck or other mobile or portable bulk container, a copy of the accepted label must be attached to the shipping papers, and left with the consignee at the time of delivery.

(B) Storage. When pesticide products are stored in bulk containers, whether mobile or stationary, which remain in the custody of the user, a copy of the label of labeling, including all appropriate directions for use, shall be securely attached to the container in the immediate vicinity of the discharge control valve.

(5) False or misleading statements. Pursuant to section 2(q)(1)(A) of the Act, a pesticide or a device declared subject to the Act pursuant to § 162.15, is misbranded if its labeling is false or misleading in any particular including both pesticidal and non-pesticidal claims. Examples of statements or representations in the labeling which constitute misbranding include:

(i) A false or misleading statement concerning the composition of the product;

(ii) A false or misleading statement concerning the effectiveness of the product as a pesticide or device;

(iii) A false or misleading statement about the value of the product for purposes other than as a pesticide or device;

(iv) A false or misleading comparison with other pesticides or devices;

(v) Any statement directly or indirectly implying that the pesticide or device is recommended or endorsed by any agency of the Federal Government;

(vi) The name of a pesticide which contains two or more principal active ingredients if the name suggests one or more but not all such principal active ingredients even though the names of the other ingredients are stated elsewhere in the labeling;

(vii) A true statement used in such a way as to give a false or misleading impression to the purchaser;

(viii) Label disclaimers which negate or detract from labeling statements required under the Act and these regulations;

(ix) Claims as to the safety of the pesticide or its ingredients, including statements such as "safe," "nonpoisonous," "noninjurious," "harmless" or "nontoxic to humans and pets" with or without such a qualifying phrase as "when used as directed"; and

(x) Non-numerical and/or comparative statements on the safety of the product, including but not limited to:

(A) "Contains all natural ingredients";

(B) "Among the least toxic chemicals known"

(C) "Pollution approved"

(6) Final printed labeling. (i) Except as provided in paragraph (a)(6)(ii) of this section, final printed labeling must be submitted and accepted prior to registration. However, final printed labeling need not be submitted until draft label texts have been provisionally accepted by the Agency.

(ii) Clearly legible reproductions or photo reductions will be accepted for unusual labels such as those silk-screened directly onto glass or metal containers or large bag or drum labels. Such reproductions must be of microfilm reproduction quality.

(b) Name, brand, or trademark. (1) The name, brand, or trademark under which the pesticide product is sold shall appear on the front panel of the label.

(2) No name, brand, or trademark may appear on the label which:

(i) Is false or misleading, or

(ii) Has not been approved by the Administrator through registration or supplemental registration as an additional name pursuant to § 162.6(b)(4).

(c) Name and address of producer, registrant, or person for whom produced. An unqualified name and address given on the label shall be considered as the name and address of the producer. If the registrant's name appears on the label and the registrant is not the producer, or if the name of the person for whom the pesticide was produced appears on the label, it must be qualified by appropriate wording such as "Packed for ***," "Distributed by ***," or "Sold by ***" to show that the name is not that of the producer.

(d) Net weight or measure of contents. (1) The net weight or measure of content shall be exclusive of wrappers or other materials and shall be the average content unless explicitly stated as a minimum quantity.

(2) If the pesticide is a liquid, the net content statement shall be in terms of liquid measure at 68°F (20°C) and shall be expressed in conventional American units of fluid ounces, pints, quarts, and gallons.

(3) If the pesticide is solid or semisolid, viscous or pressurized, or is a mixture of liquid and solid, the net content statement shall be in terms of weight expressed as avoirdupois pounds and ounces.

(4) In all cases, net content shall be stated in terms of the largest suitable units, i.e., "1 pound 10 ounces" rather than "26 ounces."

(5) In addition to the required units specified, net content may be expressed in metric units.

(6) Variation above minimum content or around an average is permissible only to the extent that it represents deviation unavoidable in good manufacturing practice. Variation below a stated minimum is not permitted. In no case shall the average content of the packages in a shipment fall below the stated average content.

(e) *Product registration number*. The registration number assigned to the pesticide product at the time of registration shall appear on the label, preceded by the phrase "EPA Registration No.," or the phrase "EPA Reg. No." The registration number shall be set in type of a size and style similar to other print on that part of the label on which it appears and shall run parallel to it. The registration number and the required identifying phrase shall not appear in such a manner as to suggest or imply recommendation or endorsement of the product by the Agency.

(f) *Producing establishments registration number*. The producing establishment registration number preceded by the phrase "EPA Est.", of the final establishment at which the product was produced may appear in any suitable location on the label or immediate container. It must appear on the wrapper or outside container of the package if the EPA establishment registration number on the immediate container cannot be clearly read through such wrapper or container.

(g) *Ingredient statement*--(1) *General*. The label of each pesticide product must bear a statement which contains the name and percentage by weight of each active ingredient, the total percentage by weight of all inert ingredients; and if the pesticide contains arsenic in any form, a statement of the percentages of total and water-soluble arsenic calculated as elemental arsenic. The active ingredients must be designated by the term "active ingredients" and the inert ingredients by the term "inert ingredients," or the singular forms of these terms when appropriate. Both terms shall be in the same type size, be aligned to the same margin and be equally prominent. The statement "Inert Ingredients, none" is not required for pesticides which contain 100 percent active ingredients. Unless the ingredient statement is a complete analysis of the pesticide, the term "analysis" shall not be used as a heading for the ingredient statement.

(2) *Position of ingredient statement*. (i) The ingredient statement is normally required on the front panel of the label. If there is an outside container or wrapper through which the ingredient statement cannot be clearly read, the ingredient statement must also appear on such outside container or wrapper. If the size or form of the package makes it impracticable to place the ingredient statement on the front panel of the label, permission may be granted for the ingredient statement to appear elsewhere.

(ii) The text of the ingredient statement must run parallel with other text on the panel on which it appears, and must be clearly distinguishable from and must not be placed in the body of other text.

(3) Names to be used in ingredient statement. The name used for each ingredient shall be the accepted common name, if there is one, followed by the chemical name. The common name may be used alone only if it is well known. If no common name has been established, the chemical name alone shall be used. In no case will the use of a trademark or proprietary name be permitted unless such name has been accepted as a common name by the Administrator under the authority of Section 25(c)(6).

(4) Statements of percentages. The percentages of ingredients shall be stated in terms of weight-to-weight. The sum of percentages of the active and the inert ingredients shall be 100. Percentages shall not be expressed by a range of values such as "22-25%." If the uses of the pesticide product are expressed as weight of active ingredient per unit area, a statement of the weight of active ingredient per unit volume of the pesticide formulation shall also appear in the ingredient statement.

(5) Accuracy of stated percentages. The percentages given shall be as precise as possible reflecting good manufacturing practice. If there may be unavoidable variation between manufacturing batches, the value stated for each active ingredient shall be the lowest percentage which may be present.

(6) Deterioration. Pesticides which change in chemical composition significantly must meet the following labeling requirements:

(i) In cases where it is determined that a pesticide formulation changes chemical composition significantly, the product must bear the following statement in a prominent position on the label: "Not for sale or use after [date]."

(ii) The product must meet all label claims up to the expiration time indicated on the label.

(7) Inert ingredients. The Administrator may require the name of any inert ingredient(s) to be listed in the ingredient statement if he determines that such ingredient(s) may pose a hazard to man or the environment.

(h) Warnings and precautionary statements. Required warnings and precautionary statements concerning the general areas of toxicological hazard including hazard to children, environmental hazard, and physical or chemical hazard fall into two groups; those required on the front panel of the labeling and those which may appear elsewhere. Specific requirements concerning content, placement, type size, and prominence are given below.

(1) Required front panel statements. With the exception of the child hazard warning statement, the text required on the front panel of the label is determined by the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown by any of the indicators in the table below:

Hazard indicators	Toxicity categories			
	I	II	III	IV
Oral LD_{50}	Up to and including 50 mg/kg	From 50 thru 500 mg/kg	From 500 thru 5000 mg/kg	Greater than 5000 mg/kg
Inhalation LC_{50}	Up to and including .2 mg/liter	From .2 thru 2 mg/liter	From 2 thru 20 mg/liter	Greater than 20 mg/liter
Dermal LD_{50}	Up to and including 200 mg/kg	From 200 thru 2000	From 2,000 thru 20,000	Greater than 20,000
Eye effects	Corrosive; corneal opacity not reversible within 7 days	Corneal opacity reversible within 7 days; irritation persisting for 7 days	No corneal opacity; irritation reversible within 7 days	No irritation
Skin effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation at 72 hours

(i) Human hazard signal word.--(A) Toxicity Category I. All pesticide products meeting the criteria of Toxicity Category I shall bear on the front panel the signal word "Danger." In addition if the product was assigned to Toxicity Category I on the basis of its oral, inhalation or dermal toxicity (as distinct from skin and eye local effects) the word "Poison" shall appear in red on a background of distinctly contrasting color and the skull and crossbones shall appear in immediate proximity to the word "poison."

(B) Toxicity Category II. All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning."

(C) Toxicity Category III. All pesticide products meeting the criteria of Toxicity Category III shall bear on the front panel the signal word "Caution."

(D) Toxicity Category IV. All pesticide products meeting the criteria of Toxicity Category IV shall bear on the front panel the signal word "Caution."

(E) Use of signal words. Use of any signal word(s) associated with a higher Toxicity Category is not permitted except when the Agency determines that such labeling is necessary to prevent unreasonable adverse effects on man or the environment. In no case shall more than one human hazard signal word appear on the front panel of a label.

(ii) Child hazard warning. Every pesticide product label shall bear on the front panel the statement "keep out of reach of children." Only in cases where the likelihood of contact with children during distribution, marketing, storage or use is demonstrated by the applicant to be extremely remote, or if the nature of the pesticide is such that it is approved for use on infants or small children, may the Administrator waive this requirement.

(iii) Statement of practical treatment--(A) Toxicity Category I. A statement of practical treatment (first aid or other) shall appear on the front panel of the label of all pesticides falling into Toxicity Category I on the basis of oral, inhalation or dermal toxicity. The Agency may, however, permit reasonable variations in the placement of the statement of practical treatment is some reference such as "See statement of practical treatment on back panel" appears on the front panel near the word "Poison" and the skull and crossbones.

(B) Other toxicity categories. The statement of practical treatment is not required on the front panel except as described in paragraph (h)(1)(iii)(A) of this section. The applicant may, however, include such a front panel statement at his option. Statements of practical treatment are, however, required elsewhere on the label in accord with paragraph (h)(2) of this section if they do not appear on the front panel.

(iv) Placement and prominence. All the required front panel warning statements shall be grouped together on the label, and shall appear with sufficient prominence relative to other front panel text and graphic material to make them unlikely to be overlooked under customary conditions of purchase and use. The following table shows the minimum type size requirements for the front panel warning statements on various sizes of labels:

Size of label front panel in square inches	Points	
	Required signal word, all capitals	"Keep out of reach of Children"
5 and under	6	6
Above 5 to 10	10	6
Above 10 to 15	12	8
Above 15 to 30	14	10
Over 30	18	12

(2) Other required warnings and precautionary statements. The warnings and precautionary statements as required below shall appear together on the label under the general heading "Precautionary Statements" and under appropriate subheadings of "Hazard to Humans and Domestic Animals," "Environmental Hazard" and "Physical or Chemical Hazard."

(i) Hazard to humans and domestic animals. (A) Where a hazard exists to humans or domestic animals, precautionary statements are required indicating the particular hazard, the route(s) of exposure and the precautions to be taken to avoid accident, injury or damage. The precautionary paragraph shall be immediately preceded by the appropriate hazard signal word.

(B) The following table depicts typical precautionary statements. These statements must be modified or expanded to reflect specific hazards.

Toxicity category	Precautionary statements by toxicity category	
	Oral, inhalation, or dermal toxicity	Skin and eye local effects
I . . .	Fatal (poisonous) if swallowed [inhaled or absorbed through skin]. Do not breathe vapor [dust] or spray mist]. Do not get in eyes, on skin, or on clothing [Front panel statement of practical treatment required.].	Corrosive, causes eye and skin damage [or skin irritation]. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. [Appropriate first aid statement required.]
II . . .	May be fatal if swallowed [inhaled or absorbed through the skin]. Do not breathe vapors [dust or spray mist]. Do not get in eyes, on skin, or on clothing. [Appropriate first aid statements required.].	Causes eye [and skin] irritation. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. [Appropriate first aid statement required.].
III . . .	Harmful if swallowed [inhaled or absorbed through the skin]. Avoid breathing vapors [dust or spray mist]. Avoid contact with skin [eyes or clothing]. [Appropriate first aid statement required.].	Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.
IV . . .	[No precautionary statements required.].	[No precautionary statements required.].

(ii) Environmental hazards. Where a hazard exists to non-target organisms excluding humans and domestic animals, precautionary statements are required stating the nature of the hazard and the appropriate precautions to avoid potential accident, injury or damage. Examples of the hazard statements and the circumstances under which they are required follow:

(A) If a pesticide intended for outdoor use contains an active ingredient with a mammalian acute oral LD_{50} of 100 or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(B) If a pesticide intended for outdoor use contains an active ingredient with a fish acute LC_{50} of 1 ppm or less, the statement "This Pesticide is Toxic to Fish" is required.

(C) If a pesticide intended for outdoor use contains an active ingredient with an avian acute oral LD_{50} of 100 mg/kg or less, or a subacute dietary LC_{50} of 500 ppm or less, the statement "This Pesticide is Toxic to Wildlife" is required.

(D) If either accident history or field studies demonstrate that use of the pesticide may result in fatality to birds, fish or mammals, the statement "This pesticide is extremely toxic to wildlife (fish)" is required.

(E) For uses involving foliar application to agricultural crops, forests, or shade trees, or for mosquito abatement treatments, pesticides toxic to pollinating insects must bear appropriate label cautions.

(F) For all outdoor uses other than aquatic applications the label must bear the caution "Keep out of lakes, ponds or streams. Do not contaminate water by cleaning of equipment or disposal of wastes."

(iii) Physical or chemical hazards. Warning statements on the flammability or explosive characteristics of the pesticide are required as follows:

Flash point	Required text
(A) PRESSURIZED CONTAINERS	
Flash point at or below 20°F; if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
Flash point above 20°F and not over 80°F or if the flame extension is more than 18 in. long at a distance of 6 in. from the flame.	Flammable. Contents under pressure. Keep away from heat, sparks, and open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
All other pressurized containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
(B) NONPRESSURIZED CONTAINERS	
At or below 20°F	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
Above 20°F and not over 80°F	Flammable. Keep away from heat and open flame.
Above 80°F and not over 150°F	Do not use or store near heat or open flame.

(i) Directions for Use--(1) General requirements--(i) Adequacy and clarity of directions. Directions for use must be stated in terms which can be easily read and understood by the average person likely to use or to supervise the use of the pesticide. When followed, directions must be adequate to protect the public from fraud and from personal injury and to prevent unreasonable adverse effects on the environment.

(ii) Placement of directions for use. Directions may appear on any portion of the label provided that they are conspicuous enough to be easily read by the user of the pesticide product. Directions for use may appear on printed or graphic matter which accompanies the pesticide provided that:

(A) If required by the Agency, such printed or graphic matter is securely attached to each package of the pesticide, or placed within the outside wrapper or bag;

(B) The label bears a reference to the directions for use in accompanying leaflets or circulars, such as "See directions in the enclosed circular." and

(C) The Administrator determines that it is not necessary for such directions to appear on the label.

(iii) Exceptions to requirement for direction for use--(A) Detailed directions for use may be omitted from labeling of pesticides which are intended for use only by manufacturers of products other than pesticide products in their regular manufacturing processes, provided that:

(1) The label clearly shows that the product is intended for use only in manufacturing processes and specifies the type(s) of products involved.

(2) Adequate information such as technical data sheets or bulletins, is available to the trade specifying the type of product involved and its proper use in manufacturing processes;

(3) The product will not come into the hands of the general public except after incorporation into finished products; and

(4) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(B) Detailed directions for use may be omitted from the labeling of pesticide products for which sale is limited to physicians, veterinarians, or druggists, provided that:

(1) The label clearly states that the product is for use only by physicians or veterinarians;

(2) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment; and

(3) The product is also a drug and regulated under the provisions of the Federal Food, Drug and Cosmetic Act.

(C) Detailed directions for use may be omitted from the labeling of pesticide products which are intended for use only by formulators in preparing pesticides for sale to the public, provided that:

(1) There is information readily available to the formulators on the composition, toxicity, methods of use, applicable restrictions or limitations, and effectiveness of the product for pesticide purposes;

(2) The label clearly states that the product is intended for use only in manufacturing, formulating, mixing, or repacking for use as a pesticide and specifies the type(s) of pesticide products involved;

(3) The product as finally manufactured, formulated, mixed, or repackaged is registered; and

(4) The Administrator determines that such directions are not necessary to prevent unreasonable adverse effects on man or the environment.

(2) Contents of Directions for Use. The directions for use shall include the following, under the headings "Directions for Use":

(i) The statement of use classification as prescribed in 162.10(j) immediately under the heading "Directions for Use."

(ii) Immediately below the statement of use classification, the statement "It is a violation of Federal law to use this product in a manner inconsistent with its labeling."

(iii) The site(s) of application, as for example the crops, animals, areas, or objects to be treated.

(iv) The target pest(s) associated with each site.

(v) The dosage rate associated with each site and pest.

(vi) The method of application, including instructions for dilution, if required, and type(s) of application apparatus or equipment requried.

(vii) The frequency and timing of applications necessary to obtain effective results without causing unreasonable adverse effects on the environment.

(viii) Specific limitations on reentry to areas where the pesticide has been applied, meeting the requirements concerning reentry provided by 40 CFR Part 170.

(ix) Specific directions concerning the storage and disposal of the pesticide and its container, meeting the requirements of 40 CFR Part 165. These instructions shall be grouped and appear under the heading "Storage and Disposal." This heading must be set in type of the same minimum sizes as required for the child hazard warning (See Table in § 162.10(h)(1)(iv).)

(x) Any limitations or restrictions on use required to prevent unreasonable adverse effects, such as:

(A) Required intervals between application and harvest of food or feed crops.

(B) Rotational crop restrictions.

(C) Warnings as required against use on certain crops, animals, objects, or in or adjacent to certain areas.

(D) [Reserved]

(E) For restricted use pesticides, a statement that the pesticide may be applied under the direct supervision of a certified applicator who is not physically present at the site of application but nonetheless available to the person applying the pesticide, unless the Agency has determined that the pesticide may only be applied under the direct supervision of a certified applicator who is physically present.

(F) Other pertinent information which the Administrator determines to be necessary for the protection of man and the environment.

(j) Statement of Use Classification. By October 22, 1976, all pesticide products must bear on their labels a statement of use classification as described in paragraphs (j)(1) and (2) of this section. Any pesticide product for which some uses are classified for general use and others for restricted use shall be separately labeled according to the labeling standards set forth in this subsection, and shall be marketed as separate products with different registration numbers, one bearing directions only for general use(s) and the other bearing directions for restricted use(s) except that, if a product has both restricted use(s) and general use(s), both of these uses may appear on a product labeled for restricted use. Such products shall be subject to the provisions of § 162.10(j)(2).

(1) General Use Classification. Pesticide products bearing directions for use(s) classified general shall be labeled with the exact words "General Classification" immediately below the heading "Directions for Use." And reference to the general classification that suggests or implies that the general utility of the pesticide extends beyond those purposes and uses contained in the Directions for Use will be considered a false or misleading statement under the statutory definitions of misbranding.

(2) Restricted Use Classification. Pesticide products bearing direction for use(s) classified restricted shall bear statements of restricted use classification on the front panel as described below:

(i) Front panel statement of restricted use classification.
(A) At the top of the front panel of the label, set in type of the same minimum sizes as required for human hazard signal words (see table in § 162.10(h)(1)(iv)), and appearing with sufficient prominence relative to other text and graphic material on the front panel to make it unlikely to be overlooked under customary conditions of purchase and use, the statement "Restricted Use Pesticide" shall appear.

(B) Directly below this statement on the front panel, a summary statement of the terms of restriction imposed as a precondition to registration shall appear. If use is restricted to certified applicators, the following statement is required: "For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification." If, however, other regulatory restrictions are imposed, the Administrator will define the appropriate wording for the terms of restriction by regulation.

(k) Advertising. [Reserved]

[40 FR 28268, July 3, 1975; 40 FR 32329, Aug. 1, 1975; 40 FR 38571, Aug. 21, 1975, as amended at 43 FR 5786, Feb. 9, 1978]

PHYS/CHEM-1

PHYSICAL/CHEMICAL HAZARDS

Criteria	Required Label Statement
I. Pressurized Containers	
A. Flashpoint at or below 20°F; or if there is a flashback at any valve opening.	Extremely flammable. Contents under pressure. Keep away from fire, sparks, and heated surfaces. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
B. Flashpoint above 20°F and not over 80°F; or if the flame extension is more than 18 inches long at a distance of 6 inches from the valve opening.	Flammable. Contents under pressure. Keep away from heat, sparks, and flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
C. All Other Pressurized Containers	Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.
II. Non-Pressurized Containers	
A. Flashpoint at or below 20°F.	Extremely flammable. Keep away from fire, sparks, and heated surfaces.
B. Flashpoint above 20°F and not over 80°F.	Flammable. Keep away from heat and open flame.
C. Flashpoint over 80°F and not over 150°F.	Do not use or store near heat and open flame.
D. Flashpoint above 150°F.	None required.

STORAGE INSTRUCTIONS FOR PESTICIDES

Heading:

All products are required to bear specific label instructions about storage and disposal. Storage and disposal instructions must be grouped together in the directions for use portion of the label under the heading STORAGE AND DISPOSAL. Products intended solely for domestic use need not include the heading "STORAGE AND DISPOSAL."

Storage Instructions:

All product labels are required to have appropriate storage instructions. Specific storage instructions are not prescribed. Each registrant must develop his own storage instructions, considering, when applicable, the following factors:

1. Conditions of storage that might alter the composition or usefulness of the pesticide. Examples could be temperature extremes, excessive moisture or humidity, heat, sunlight, friction, or contaminating substances or media.

2. Physical requirements of storage which might adversely affect the container of the product and its ability to continue to function properly. Requirements might include positioning of the container in storage, storage or damage due to stacking, penetration of moisture, and ability to withstand shock or friction.

3. Specifications for handling the pesticide container, including movement of container within the storage area, proper opening and closing procedures (particularly for opened containers), and measures to minimize exposure while opening or closing container.

4. Instructions on what to do if the container is damaged in any way, or if the pesticide is leaking or has been spilled, and precautions to minimize exposure if damage occurs.

5. General precautions concerning locked storage, storage in original container only, and separation of pesticides during storage to prevent cross-contamination of other pesticides, fertilizer, food, and feed.

6. General storage instructions for household products should emphasize storage in original container and placement in locked storage areas.

PEST/DIS-1

PESTICIDE DISPOSAL INSTRUCTIONS

The label of all products, except those intended solely for domestic use, must bear explicit instructions about pesticide disposal. The statements listed below contain the exact wording that must appear on the label of these products:

1. The labels of all products, except domestic use, must contain the statement, "Do not contaminate water, food, or feed by storage or disposal."

2. Except those products intended solely for domestic use, the labels of all products that contain active ingredients that are Acute Hazardous Wastes (see list in this Appendix) or are assigned to Toxicity Category I on the basis of oral or dermal toxicity, skin or eye irritation potential, or Toxicity Category I or II on the basis of acute inhalation toxicity must bear the following pesticide disposal statement:

> "Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

3. The labels of all products, except those intended for domestic use, containing active or inert ingredients that are Toxic Hazardous Wastes (see list in this Appendix) or meet any of the criteria in 40 CFR 261, Subpart C for a hazardous waste must bear the following pesticide disposal statement:

> "Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance."

4. Labels for all other products, except those intended for domestic use, must bear the following pesticide disposal statement:

> "Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility."

5. Products intended for domestic use only must bear the following disposal statement: "Securely wrap original container in several layers of newspaper and discard in trash."

PESTICIDE ACTIVE INGREDIENTS THAT ARE ACUTE HAZARDOUS WASTES

I. PESTICIDES ON THE "E" LIST (with RCRA # and CAS #) [40 CFR 261.33(e)]

Acrolein	P003	107-13-1
Aldicarb	P070	116-06-3
Aldrin	P004	309-00-2
Allyl alcohol	P005	107-18-6
Aluminum phosphide	P006	1302-45-0
4-Aminopyridine (Avitrol)	P008	504-24-5
Arsenic acid	P010	7778-39-4
Arsenic pentoxide	P011	1303-28-2
Arsenic trioxide	P012	1327-53-3
Calcium cyanide	P021	592-01-8
Carbon disulfide	P022	75-15-0
p-Chloroaniline	P024	106-47-8
Cyanides (soluble cyanide salts not otherwise specified)	P030	
Cyanogen chloride	P031	506-77-4
Dieldrin	P037	60-57-1
O,O-Diethyl S-[2-ethylthio)ethyl] phosphorodithioate (disulfoton)	P039	298-04-4
O,O-Diethyl O-pyrazinyl phosphorothioate (Zinophos®)	P040	297-97-2
Dimethoate	P044	60-51-5
O,O-Dimethyl O-p-nitrophenyl phosphorothioate (methyl parathion)	P071	298-00-0
4,6-Dinitro-o-cresol and salts	P047	534-52-1
4,6-Dinitro-o-cyclohexylphenol	P034	131-89-5
Dinoseb	P020	88-85-7
Endosulfan	P050	115-29-7
Endothall	P088	129-67-9
Endrin	P051	72-20-8
Famphur	P097	52-85-7
Fluoroacetamide	P057	640-19-7
Heptachlor	P059	76-48-8
Hexachlorohexahydro-exo,exo-dimethanonaphthalene (Isodrin)	P069	465-73-6
Hydrocyanic acid	P063	74-90-8
Methomyl	P066	16752-77-5
alpha-Naphthylthiourea (ANTU)	P072	86-88-41
Nicotine and salts	P075	54-11-5
Octamethylpyrophosphoramide (OMPA, schradan)	P085	152-16-9
Parathion	P089	56-38-2
Phenylmercuric acetate (PMA)	P092	62-38-4
Phorate	P094	298-02-2
Potassium cyanide	P098	151-50-8
Propargyl alcohol	P102	107-19-7
Sodium azide	P105	26628-22-8
Sodium cyanide	P106	143-33-9
Sodium fluoroacetate	P058	62-74-8

Strychnine and salts	P108	57-24-9 60-41-3
O,O,O,O-Tetraethyl dithiopyrophosphate (sulfotepp)	P109	3689-24-5
Tetraethyl pyrophosphate	P111	107-49-3
Thallium sulfate	P115	7446-18-6
Thiofanox	P045	39196-18-4
Toxaphene	P123	8001-35-2
Warfarin (>0.3%)	P001	81-81-2
Zinc phosphide (>10%)	P122	1314-84-7

50 ACTIVES

II. PESTICIDES DERIVED FROM TRI-, TETRA-, AND PENTACHLOROPHENOLS [40 CFR 261.31]

2-Chloroethyl 2-(2,4,6-trichlorophenoxy) ethyl ether	F027	5324-22-1
Dehydroabietylammonium pentachlorophenoxide	F027	35109-57-0
Erbon	F027	136-25-4
O-ethyl O-(2,4,5-trichlorophenyl) ethylphosphonothioate	F027	327-98-0
2,2'-Methylenebis (3,4,6-trichlorophenol) (Hexachlorophene)	F027	70-30-4
--Potassium salt of	F027	67923-62-0
--Sodium salt of	F027	3247-34-5
--Disodium salt of	F027	5736-15-2
Pentachlorophenol	F027	87-86-5
--Potassium salt of	F027	7778-73-6
--Sodium salt of	F027	131-52-2
--Zinc salt of	F027	2917-32-0
--Zinc salt of N-alkyl $(C_{16}-C_{18})$-1,3-propanediamine	F027	
--Pentachlorophenyl laurate	F027	3772-94-9
Potassium trichlorophenate (2,4,6)	F027	2591-21-1
Potassium trichlorophenate (2,4,5)	F027	35471-43-3
Silvex	F027	93-72-1
--2-Butoxyethyl ester	F027	19398-13-1
--Butoxypolypropoxypropyl ester	F027	53404-07-2
--Butoxypropyl ester	F027	25537-26-2
--Diethanolamine salt	F027	51170-59-3
--Diisopropanolamine salt	F027	53404-09-4
--Dimethylamine salt	F027	55617-85-1
--Dipropylene glycol isobutyl ether ester	F027	53535-26-5
--Ethanolamine salt	F027	7374-47-2
--2-Ethylhexyl ester	F027	53404-76-5
--Isooctyl ester	F027	53404-14-1

--Isopropanolamine salt	F027	53404-13-0
--Monohydroxylaluminum salt	F027	69622-82-8
--Polypropoxypropyl ester	F027	83562-66-7
--Potassium salt	F027	2818-16-8
--Propylene glycol isobutyl ether ester	F027	53466-84-5
--Sodium salt	F027	37913-89-6
--Triethanolamine salt	F027	17369-89-0
--Triethylamine salt	F027	53404-74-3
--Triisopropanolamine salt	F027	53404-75-4
--Tripropylene glycol isobutyl ether ester	F027	53535-30-1
Sodium 2-(2,4,5-trichlorophenoxy) ethyl sulfate	F027	3570-61-4
Tetrachlorophenols	F027	25167-83-3
--Alkylamine*amine salt (as in fatty acids of coconut oil)	F027	
--Potassium salt	F027	53535-27-6
--Sodium salt	F027	25567-55-9
2,4,5-Trichlorophenol	F027	95-95-4
2,4,6-Trichlorophenol	F027	88-06-2
2,4,5-Trichlorophenol salt of 2,6-bis[(dimethylamino)methyl] cyclohexanone	F027	53404-83-4
2,4,5-Trichlorophenol, sodium salt	F027	136-32-3
2,4,6-Trichlorophenol, sodium salt	F027	3784-03-0
2,4,5-Trichlorophenoxyacetic acid	F027	93-79-8
--Alkyl C-12 amine salt	F027	53404-84-5
--Alkyl C-13 amine salt	F027	53404-85-6
--Alkyl C-14 amine salt	F027	53535-37-8
--N,N-diethylethanolamine salt	F027	53404-86-7
--Dimethylamine salt	F027	6369-97-7
--N,N-dimethyllinoleylamine salt	F027	53404-88-9
--N,N-dimethyloleylamine salt	F027	53404-89-0
--N-oleyl-1,3-propylene diamine salt	F027	53404-87-8
--Sodium salt	F027	13560-99-1
--Triethanolamine salt	F027	3813-14-7
--Triethylamine salt	F027	2008-46-0
--Alkyl (C3H7 - C7H9) ester	F027	
--Amyl ester	F027	120-39-8
--Butoxyethoxypropyl ester	F027	1928-58-1
--2-Butoxyethyl ester	F027	2545-59-7
--Butoxypropyl ester	F027	1928-48-9
--Butyl ester	F027	93-79-8
--Dipropylene glycol isobutyl ether ester	F027	53535-31-2
--2-Ethylhexyl ester	F027	1928-47-8
--Isobutyl ester	F027	4938-72-1

--Isopropyl ester	F027	93-78-7
--Propylene glycol isobutyl ether ester	F027	53466-86-7
--Tripropylene glycol isobutyl ether ester	F027	53535-32-3
4-(2,4,5-Trichlorophenoxy)butyric acid [2,4,5-TB]	F027	93-80-1
2-(2,4,5-Trichlorophenoxy)ethyl hydrogen sulfate [2,4,5-TES]	F027	69633-04-1
1,4',5'-Trichloro-2'-(2,4,5-trichlorophenoxy) methanesulfonanilide [Edolan U]	F027	69462-14-2

PEST/DIS-6

PESTICIDES THAT ARE TOXIC HAZARDOUS WASTES

PESTICIDES ON THE "F" LIST [40 CFR 261.33(f)] (with	RCRA #, and	CAS #
Acetone	U002	67-64-1
Acrylonitrile*	U009	107-13-1
Amitrole	U011	61-82-5
Benzene*	U019	71-43-2
Bis(2-ethylhexyl)phthalate	U028	117-81-7
Cacodylic acid	U136	75-60-5
Carbon tetrachloride*	U211	56-23-5
Chloral (hydrate) (chloroacetaldehyde)	U034	302-17-0
Chlordane, technical*	U036	57-74-9
Chlorobenzene*	U037	108-90-7
4-Chloro-m-cresol	U039	59-50-7
Chloroform*	U044	67-66-3
o-Chlorophenol	U048	95-57-8
Creosote	U051	8021-39-4
Cresylic acid (cresols)*	U052	1319-77-3
Cyclohexane	U056	110-82-7
Cyclohexanone	U057	108-94-1
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one (Kepone, chlordecone)	U142	143-50-0
1,2-Dibromo-3-chloropropane (DBCP)	U066	96-12-8
Dibutyl phthalate	U069	84-74-2
S-2,3-(Dichloroallyl diisopropyl-thiocarbamate) (diallate,Avadex)	U062	2303-16-4
o-Dichlorobenzene*	U070	95-50-1
p-Dichlorobenzene*	U072	106-46-7
Dichlorodifluoromethane (Freon 12®)	U075	75-71-8
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide (pronamide, Kerb®)	U192	23950-58-5
Dichloro diphenyl dichloroethane (DDD)	U060	72-54-8
Dichloro diphenyl trichloroethane (DDT)	U061	50-29-3
Dichloroethyl ether	U025	1191-17-9
2,4-Dichlorophenoxyacetic, salts and esters (2,4-D)*	U240	94-75-7
1,2-Dichloropropane	U083	8003-19-8
1,3-Dichloropropene (Telone)	U084	542-75-6
Dimethyl phthalate	U102	131-11-3
Epichlorohydrin (1-chloro-2,3-epoxypropane)	U041	106-89-8
Ethyl acetate	U112	141-78-6
Ethyl 4,4'-dichlorobenzilate (chlorobenzilate)	U038	510-15-6

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*Proposed for deletion by TCLP proposal

Ethylene dibromide (EDB)	U067	106-93-4
Ethylene dichloride*	U077	107-06-2
Ethylene oxide	U115	75-21-8
Formaldehyde	U122	50-00-0
Furfural	U125	98-01-1
Hexachlorobenzene*	U127	118-74-1
Hexachlorocyclopentadiene	U130	77-47-4
Hexachloroethane*	U131	67-72-1
Hydrofluoric acid	U134	7664-39-3
Isobutyl alcohol*	U140	78-83-1
Lead acetate	U144	301-04-2
Lindane*	U129	58-89-9
Maleic hydrazide	U148	123-33-1
Mercury	U151	7439-97-6
Methoxychlor*	U247	72-43-5
Methyl alcohol (methanol)	U154	67-56-1
Methyl bromide	U029	74-83-9
Methyl chloride	U045	74-87-3
2,2'-Methylenebis (3,4,6-trichlorophenol) (hexachlorophene) [acute waste per 261.31]	U132	70-30-4
Methylene chloride*	U080	75-09-2
Methyl ethyl ketone*	U159	78-93-3
4-Methyl-2-pentanone (methyl isobutyl ketone)	U161	108-10-1
Naphthalene	U165	91-20-3
Nitrobenzene*	U169	98-95-3
p-Nitrophenol	U170	100-02-7
Pentachloroethane	U184	76-01-7
Pentachloronitrobenzene (PCNB)	U185	82-68-8
Pentachlorophenol* [acute waste per 261.31]	U242	87-86-5
Phenol*	U188	108-95-2
Pyridine*	U196	110-86-1
Resorcinol	U201	108-46-3
Safrole	U203	94-59-7
Selenium disulfide	U205	7488-56-4
Silvex [acute waste per 261.31]	U233	93-72-1
1,1,2,2-Tetrachloroethane*	U209	79-34-5
Tetrachloroethylene*	U210	127-18-4
2,3,4,6-Tetrachlorophenol* [acute waste per 261.31]	U212	
Thiram	U244	137-26-8
Toluene*	U220	108-88-3
1,1,1-Trichloroethane* (methyl chloroform)	U226	71-55-6
Trichloroethylene*	U228	79-01-6
Trichloromonofluoromethane (Freon 11®)	U121	75-69-4
2,4,5-Trichlorophenol* [acute waste per 261.31]	U230	95-95-4
2,4,6-Trichlorophenol* [acute waste per 261.31]	U231	88-06-2

2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)* [acute waste per 261.31]	U232	93-76-5
Warfarin (<0.3%)	U248	81-81-2
Xylene	U239	1330-20-7
Zinc phosphide (<10%)	U249	1314-84-7

83 ACTIVES

CONT/DIS-1

CONTAINER DISPOSAL INSTRUCTIONS

The label of each product must bear container disposal instructions appropriate to the type of container.

1. Domestic use products must bear one of the following container disposal statements:

Container Type	Statement
Non-aerosol products (bottles, cans, jars)	Do not reuse container (bottle, can, jar). Rinse thoroughly before discarding in trash.
Non-aerosol products (bags)	Do not reuse bag. Discard bag in trash.
Aerosol products	Replace cap and discard containers in trash. Do not incinerate or puncture.

2. All other products must bear container disposal instructions, based on container type, listed below:

Container Type	Statement
Metal containers (non-aerosol)	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
Plastic containers	Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.
Glass containers	Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.
Fiber drums with liners	Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If drum is contaminated and cannot be reused[1], dispose of in the same manner.
Paper and plastic bags	Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.
Compressed gas cylinders	Return empty cylinder for reuse (or similar wording)

[1] Manufacturer may replace this phrase with one indicating whether and how fiber drum may be reused.

APPENDIX III

USE INDEX APPENDIX

TRIFLURALIN*

TYPE PESTICIDE: Herbicide

FORMULATIONS:
Tech [redacted] 94.5%, 95%, 96%, and 98%
FI (44.5%, 46%)
G (0.095%, 0.17%, 0.174%, 0.2%, 0.25%, 0.35%, 0.37%, 0.5%, 0.68%, 0.74%, 0.92%, 0.93%, 1.15%, 1.47%, 1.75%, 2.65%, 4%, 5%, 10%)
WP (3.1%, 10%)
EC (1.5 lb/gal, 4 lb/gal, 5 lb/gal)
PrD (1.75%)

GENERAL WARNINGS AND LIMITATIONS: A selective, preemergent, soil incorporated herbicide for the control of certain broadleaf weeds and annual grasses. Remove existing weeds prior to application. Trifluralin controls weeds as they emerge and will not control established weeds. A one-pass incorporation must be done within 24 hours after application. A second pass, at a right angle to the first, should be made any time prior to planting. Application and incorporation can also be postplant or lay-by. Trifluralin should be uniformly incorporated into the top 2 to 3 inches of the final seedbed. Residual plant material should be at a level so as to allow uniform incorporation, and the soil surface should be smooth enough to allow efficient and uniform application. Soil moisture should be at a level that allows large clods to be broken up during incorporation. Soil may be shallow cultivated after planting without reducing weed control provided untreated soil is not brought to the surface. Unless otherwise specified, use the lower dosage on coarse and medium textured soils and the higher dosage on fine textured soils. Silty clay loams and sandy clay loam soils are transitional soils and may be classified as either medium or fine textured soils. Trifluralin is not recommended for use on muck soils or on soils containing more than 10 percent organic matter. Dosages are expressed as pounds a.i. broadcast rate per acre. For band applications, reduce dosage in proportion to band area actually treated. When tank mixes are used, observe all precautions and limitations given on the labeling of tank mix chemicals. May be applied in conjunction with liquid or dry bulk fertilizers. Apply in 5 to 40 gallons of water per acre by ground or 5 to 10 gallons by air, unless otherwise specified.

Definition of Terms:
a.i. - active ingredient

TIME REQUIRED FOR CONTROL: Not located.

PHYTOTOXICITY TO TARGET WEEDS: Not located.

PHYTOTOXICITY TO CROPS: Not located.

MODE OF ACTION: Inhibits both root and shoot growth when absorbed by the roots of germinating plants.

*Treflan
alpha,alpha,alpha-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine

TRIFLURALIN

BROADLEAF WEEDS CONTROLLED:

PALABBA	Carpetweed	
PAZAAAL	Chickweed	
PBGACBB	Field bindweed	
PEMAEBB	Florida pusley	
PBDAEAA	Goosefoot	
PCOAFBA	Henbit	(a)
PEAAGAC	Knotweed	
PBDAIBA	Kochia	
PBDAEAB	Lambsquarters	
PAAAABI	Pigweed	
PAFACBC	Prostrate pigweed	
PFMAFBB	Puncturevine	(b)
PAAAABP	Purslane	
PAFACBI	Redroot pigweed	
PAFACAB	Rough pigweed	
PBDAKBA	Russian thistle	
PEAAGAD	Smartweed	
PAFACBJ	Spiny amaranth	
PBVAGBK	Spotted spurge	
PFGAEBA	Stinging nettle	

(a) Fall application only.
(b) Western U.S. only.

GRASSES AND OTHER MONOCOTS CONTROLLED:

PCACKBA	Annual bluegrass
PCACFBM	Bahiagrass
PCABHBB	Barnyardgrass
PCAATAA	Brome
PCAATBK	Cheat
PCABFAA	Crabgrass
PCABCBA	Crowfootgrass
PCAATBM	Downy brome
PCACEBD	Fall panicum
PCACUAA	Foxtail
PCACUBA	Giant foxtail
PCABIBA	Goosegrass
PCACUBF	Green foxtail
PCACEBH	Guineagrass
PCACOBA	Itchgrass
PCACWBC	Johnsongrass
PCACWBG	Johnsongrass (seedling)
PCABHBA	Junglerice
PCABFBF	Large crabgrass
PCACCBA	Rice
PCACUAC	Robust foxtail
PCABZAA	Ryegrass
PCAAWAA	Sandbur
PCACWBB	Shattercane

TRIFLURALIN

GRASSES AND OTHER MONOCOTS CONTROLLED (continued)

PCAAFAA	Signalgrass
PCABFBD	Smooth crabgrass
PCABYAA	Sprangletop
PCABKBC	Stinkgrass
PCACEBL	Texas panicum
PCABLBB	Woolly cupgrass
PCACUBD	Yellow foxtail

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Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations

TERRESTRIAL FOOD CROP

(Agricultural Crops)

General Warnings and Limitations: Unless otherwise specified, fall applications are limited to areas receiving more than 20 inches average annual rainfall. In most states, applications should be made between October 15 and December 31. In CA, MN, MO, ND and SD, applications can be made between September 1 and December 31. For over-wintering, ground may be left flat or bedded-up. If ground is bedded, beds should be knocked down to desired height before planting, moving some treated soil from beds into furrows. Untreated soil should not be turned up during spring bedding operations if soil is left over winter. When preparing seedbed, established weeds should be destroyed. Weeds that become established in furrows due to uncovering of untreated soil should also be destroyed prior to planting. Do not apply in the fall to soils which are wet, are subject to long periods of flooding, or where rice was grown the previous year. Do not apply in the fall for sugarbeets, potatoes, and direct seeded tomatoes.
In AZ, CO, ID, MT, NV, NM, OR, UT, WA and WY, sugarbeets, red beets or spinach should not be planted for 12 months after a spring application or for 14 months after a fall application. Soil should be plowed to a depth of 12 inches prior to planting sugarbeets to prevent crop injury. Sorghum (milo), proso millet, corn or oats should not be planted for 14 months after a spring application or for 16 months after a fall application. If land has not been irrigated, do not plant any of these crops for 18 months after a spring application or 20 months after a fall application.
In areas of KS, NE, ND, OK, SD and TX where at least 20 inches of irrigation and/or rainfall was used, sorghum or oats should not be planted for 12 months after an application.
In areas receiving less than 20 inches total water, do not plant sorghum, proso millet or oats for 18 months after an application. Cool, wet weather during the early growth stage may increase the possibility of injury to sorghum.
In all other areas receiving greater than 20 inches rainfall per year: before planting sugar beets, moldboard plow where a spring application was made the previous season; vegetables, other than those listed, should not be planted within 5 months following an application.
Homeowner dosages are expressed as oz product per 100 square feet.

/23001AA	**Alfalfa**	0.05 ppm (N) (forage legumes) 0.2 ppm (N) (hay)
	0.75-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Broadcast. Apply to established alfalfa stands in areas receiving less than 20 inches average annual rainfall. Use the lower dosage rate on coarse textured soils and the higher dosage rate on medium and fine textured soils.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/03001AA /05001AA	Almond Apricot	0.05 ppm (N) (nuts, stone fruits)
	0.5-1 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving less than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter.
	1-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on bearing or nonbearing, established plantings in areas receiving less than 20 inches average annual rainfall.
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating. This will prevent field bindweed from emerging.
	2 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For the control of rhizome johnsongrass on nonbearing and bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.
	Apricot	See Almond cluster.
/16002AA	Asparagus	0.05 ppm Do not apply more than 1 lb a.i. per acre on coarse textured soils, 1.5 lb a.i. per acre on medium textured soils and 2 lb a.i. per acre on fine textured soils within a single calendar year.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Asparagus (continued)	
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preemergence. Broadcast. Split application to established asparagus. Apply in the winter or early spring after ferns are removed, but before spear emergence.
		AND
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Postharvest. Broadcast. Split application to established asparagus. Apply after harvest in the late spring or early summer before ferning begins.
	1-2 (4 lb/gal EC) (5 lb/gal EC)	Preemergence. Broadcast. Single application to established asparagus. Apply in the winter or early spring after ferns are removed, but before spear emergence.
		OR
	1-2 (4 lb/gal EC) (5 lb/gal EC)	Postharvest. Broadcast. Single application to established asparagus. Apply after harvest in the late spring or early summer before ferning begins.
/28063AA	Barley	0.05 ppm (grain crops, hay, fodder, forage, straw
	0.75-1 (5% G)	Use limited to ID, MN, MT, ND, OR, SD, WA and WY for the control of foxtail in summer fallow. Broadcast. Apply the lower dosage between July 1 and August 31, and the higher dosage between April 15 and June 30. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to incorporate to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.
	0.63-1 (10% G)	For the control of foxtail in summer fallow. Broadcast. Apply the lower dosage in August, 0.75 lb a.i per acre in July, 0.88 lb a.i. per acre in June, and the higher dosage between mid-April through May. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Barley (continued)	
	0.5-0.75 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, MN, MT, ND, OR, SD, WA and WY for the control of foxtail. Fall application. Broadcast. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to incorporate to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Postplant incorporated. Broadcast. For the control of foxtail. Plant seed 2 to 3 inches deep in a well tilled seedbed. Incorporate to a depth of 1 to 1.5 inches using a flex-tine or diamond harrow. May be tank mixed with triallate for the additional control of wild oat.
/15001AA	Beans, Adzuki	0.05 ppm (N) (seed and pod vegetables, forage legumes)
	0.5-1.25 (5% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 to 1 lb a.i. on soils with 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on soils with 5 to 10 percent organic matter.
/15001AA	Beans, Dried-Type	0.05 ppm (N) (seed and pod vegetables, forage legumes) General Information: Dried-type beans include kidney, navy and pinto beans.
	1.07-2.13 oz product/100 sq.ft (1.75% G) (5% G)	Preplant. Broadcast.
	1.6-2.13 oz product/100 sq.ft (1.75% G)	Preplant. Broadcast. Apply the lower dosage on sandy soils containing 2 to 5 percent organic matter and the higher dosage on sandy soils containing 5 to 10 percent organic matter.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Beans, Dried-Type (continued)	
	0.75-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Use the entire dosage range on soils containing 2 to 5 percent organic matter; soils containing 5 to 10 percent organic matter require the higher dosage.
	0.5-1 (0.2% G) (0.25% G) (5% G) (10% G) (5 lb/gal EC)	Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter. The emulsifiable concentrates may be tank mixed with eptam.
	0.5-0.75 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Broadcast. Fall application.
/15002AA /15003AA	**Beans, Lima** **Beans, Snap**	0.05 ppm (N) (seed and pod vegetables, forage legumes)
	1.25-1.67 oz product/100 sq.ft (0.93% G) (1.47% G) (1.75% G) (5% G)	Preplant. Broadcast. Apply up to 10 weeks before planting.
	1.25-2.5 oz product/100 sq.ft (1.47% G) (5% G)	Preplant. Broadcast. Apply up to 10 weeks before planting.
	0.5-0.75 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast.
	Beans, Snap	See Beans, Lima cluster.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/13005AA /13006AA /13007AA /13008AA	Broccoli Brussels Sprouts Cabbage Cauliflower	0.05 ppm (N) (leafy vegetables) Direct seeded cole crops have exhibited marginal tolerance to recommended rates of trifluralin. Stunting or reduced stands may occur. Do not apply after transplanting.
	(direct seeded) 1.25-1.67 oz product/100 sq.ft (1.47% G) (5% G)	Preplant. Broadcast. Apply up to 10 weeks before planting.
	0.5-0.75 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use in areas receiving more than 20 inches average annual rainfall. Apply the lower dosage on coarse and medium textured soils and the higher dosage on fine textured soils and soils containing 2 to 5 percent organic matter.
	0.5-0.75 (0.2% G) (0.25% G) (4 lb/gal EC)	Preplant. Broadcast. For use in areas receiving less than 20 inches average annual rainfall. Apply the higher dosage on soils containing 2 to 10 percent organic matter.
	(transplants) 1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (5% G)	Pretransplant. Broadcast.
	0.5-1 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Pretransplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter.
	Brussels Sprouts	See Broccoli cluster.
	Cabbage	See Broccoli cluster.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/10002AA /10010AA	Cantaloupe Cucumber	0.05 ppm (N) (cucurbits)
	1.25-2.5 oz product/100 sq.ft (1.47% G)	Preplant. Broadcast.
	1.25-2.5 oz product/100 sq.ft (1.47% G) (5% G)	Postemergence. Broadcast. Apply to soil when foliage is dry and plants have 3 to 4 true leaves.
	0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed application. Apply to the soil between the rows and beneath plants which are in the 3 to 4 true leaf stage. Set incorporation equipment to throw treated soil around the plants during incorporation. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter.
/14003AA	Carrot	1.0 ppm
	1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (5% G)	Preplant. Broadcast. Apply up to 10 weeks before planting.
	1.25-2.5 oz prod- 0.5-1 (0.2% G) (0.25% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter.

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TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/27001AA	Castor Bean	N.F.
	0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter.
	Cauliflower	See Broccoli cluster.
/13002AA	Celery	0.05 ppm (N) (leafy vegetables)
	(direct seeded and transplant) 0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant or pretransplant. Broadcast. For use in areas receiving less than 20 inches average annual rainfall. Use 0.75 lb a.i or more on soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils with 5 to 10 percent organic matter.
/02000AA	Citrus Fruits	0.05 ppm (N) General Information: For continued weed control, apply 2 times a year at 4 to 6 month intervals.
	0.5-1 (5% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. on fine textured soils containing 2 to 5 percent organic matter.
	0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving less than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter, and 1 lb a.i on soils with 5 to 10 percent organic matter.
	1-2 (5% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on nonbearing, established plantings.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/13009AA /13011AA	Collards Kale	0.05 ppm (N) (leafy vegetables)
	0.5-0.75 (0.2% G) (0.25% G)	Preplant. Broadcast.
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Apply the lower dosage for anticipated light weed pressure and the higher dosage for anticipated heavy weed pressure.
/28007AA	Cotton	0.05 ppm (N) (cottonseed) Plant only rice or crops for which trifluralin can be applied as a preplant treatment in the season following a double rate treatment. Plant after early season adverse weather conditions have passed, especially when using higher rate programs. Cool, wet weather early in the growth cycle causes additional stress to the cotton plant, which may result in reduced stands, delayed maturity and reduced yields. Wheat or barley can be planted in the fall following a postemergence application. When applying postplant, care must be taken not to disturb the seed.
	0.5-1.25 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Broadcast. Apply before planting, at planting, or immediately after planting. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 to 1 lb a.i. on soils with 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on soils with 5 to 10 percent organic matter.
	1-1.25 (0.35% G) (0.5% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to AL, AR, northern FL, GA, LA, MS, southeastern MO bootheel, NC, NM, OK, SC, TN and TX. Broadcast. Fall application.
	0.75-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to AZ, CA and NV. Broadcast. Fall application.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Cotton (continued)	
0.5-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Broadcast. Fall application. Use 0.75 lb a.i on coarse textured soils with 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on coarse textured soils with 5 to 10 percent organic matter.
1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For the control of fall panicum on coarse and medium textured soils.
1-2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to all cotton producing states except AZ and CA. Preplant. Broadcast. Spring or fall application for the control of rhizome johnsongrass. Prepare the soil using a chisel plow or similar equipment to bring rhizomes to the soil surface. Follow with a disc 2 times before application to cut the rhizomes into small 2 to 3 inch pieces. Incorporate to a depth of 4 to 6 inches. To remove escaped plants, cultivation during growing season is necessary. Apply for 2 consecutive years.
0.5-1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to LA. Preplant. Broadcast. For the control of pigweed and seedling johnsongrass.
0.75-1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to the TX Gulf Coast counties of Brazoria, Calhoun, Chambers, Fort Bend, Galveston, Harris, Jackson, Jefferson, Liberty, Matagorda, Orange, Victoria, Waller and Wharton. Preplant. Broadcast. Apply up to 2 weeks before planting.
0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to all cotton producing states except AZ and CA. Preplant or preemergence. Broadcast. Do not apply on sandy, loamy sand or fine sandy loam soils, or on cotton planted in furrows in west TX. Apply the lower dosage on sandy loam soils low in organic matter in AR, LA and MS. Do not plant treated land with crops other than cotton until 1 year after last application, or use on sandy or coarse textured soils having less than 3 percent organic matter in NM. Tank mix with fluometuron.
0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Follow with a preemergence surface application of fluometuron.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Cotton (continued)	
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to areas east of the Mississippi River plus AR, southeastern MO, LA and eastern TX. Preplant. Broadcast. Follow with a preemergence application of diuron.
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Apply up to 30 days before planting. Tank mix with norflurazon. May be followed with a preemergence surface application of norflurazon.
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AZ, CA, NM, and west TX. Preemergence. Broadcast. Tank mix with prometryn.
	0.5-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed application. Apply anytime up to layby, but not less than 90 days before harvest. Direct spray between the rows and beneath emerged cotton plants. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 to 1 lb a.i. on soils with 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on soils with 5 to 10 percent organic matter.
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Broadcast or directed spray. Apply from the 4 true leaf stage up to layby, but not less than 90 days before harvest.
/28005AA	Corn	0.05 ppm (N) (grain (exc. popcorn), forage, fodder) Do not apply to corn grown for seed.
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Broadcast or directed spray. For the control of shattercane. May be tank mixed with atrazine.
/28006AA	Corn, Field	0.05 ppm (N) (grain (exc. popcorn), forage, fodder) Do not apply to corn grown for seed.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Corn, Field (continued)	
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed or over-the-top spray. Prior to application, cultivate to remove established weeds and to cover the base of the plants with soil. Apply only after the crop is well established (8 inches or taller). Use the lower dosage rate when light weed pressure is anticipated, and the higher dosage when heavy weed pressure is anticipated.
	Cucumber	See Cantaloupe cluster.
/28009AA	Flax	0.05 ppm (seed, straw) Do not plant until the seedbed has warmed up.
	0.5-1 (5% G) (10% G) (4 lb/gal EC)	Preplant. Broadcast. Apply in the fall after September 1 and before December 31. Spring incorporation should be shallow to maintain a firm seedbed. Plant seed at least 1.5 inches deep with a press or hoe drill, to a moist well packed seedbed.
/02002AA /02004AA /02007AA /02008AA	Grapefruit Lemon Tangelo Tangerine	0.05 ppm (N) (citrus fruits) General Information: For continued weed control, apply 2 times a year at 4 to 6 month intervals.
	1-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on bearing or nonbearing established plantings.
	2 (4 lb/gal EC) (5 lb/gal EC)	Directed spray. For the control of rhizome johnsongrass on nonbearing and bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Grapefruit cluster (continued)	
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating. This will prevent field bindweed from emerging.
/01014AA	Grapes	0.05 ppm (N) Sixty day preharvest interval in areas receiving less than 20 inches average annual rainfall. Do not apply more than 1 lb a.i. per acre on heat treated grape rootings.
	0.5-1 (5% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. on fine textured soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.
	0.5-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving less than 20 inches average annual rainfall. Use 1.5 lb a.i. or less on coarse and medium textured soils, and 1.5 lb a.i. or more on fine textured soils or soils containing 2 to 10 percent organic matter.
	0.75-1 (5% G)	Preplant. Broadcast. For use on soils containing 2 to 5 percent organic matter to be planted to new plantings.
	1-2 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on bearing or nonbearing, established plantings in areas receiving less than 20 inches average annual rainfall.
	2 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For the control of rhizome johnsongrass on nonbearing and bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Grapes (continued)	
		use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating. This will prevent field bindweed from emerging.
/26011AA	Guar	0.05 ppm (N) (forage legumes)
/15012AA	Mungbean	0.05 ppm (N) (seed and pod vegetables) 2.0 ppm (mungbean sprouts)
	0.5-0.75 (0.2% G) (0.25% G)	Preplant. Broadcast.
	0.38-0.75 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Apply the lower dosage for anticipated light weed pressure and the higher dosage for anticipated heavy weed pressure.
/08020AA	Hops	0.05 ppm (N)
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Dormant application. Broadcast. Apply the higher dosage on fine textured soils and soils with 2 to 10 percent organic matter.
	Kale	See Collards cluster.
	Lemon	See Grapefruit cluster.
/28012AA	Mint (peppermint, spearmint)	0.05 ppm (N) (hay) 2.0 ppm (oil)
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	For use on established mint. Broadcast. Use incorporation equipment that will insure thorough soil mixing with minimum damage to the crop.
	Mungbean	See Guar cluster.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/13021BA	**Mustard (seed crop)**	0.05 ppm (N) (leafy vegetables)
	0.5-0.75 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to MN, MT and ND on mustard grown for seed. Preplant. Broadcast. Apply the lower dosage on coarse textured soils and the higher dosage on medium and fine textured soils.
/13021AA	**Mustard**	0.05 ppm (N) (leafy vegetables)
	0.5-0.75 (0.2% G) (0.25% G)	Preplant. Broadcast.
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Apply the lower dosage for anticipated light weed pressure and the higher dosage for anticipated heavy weed pressure.
	0.5-0.75 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to MN, MT and ND on mustard greens grown for processing. Preplant. Broadcast. Apply the lower dosage on coarse textured soils and the higher dosage on medium and fine textured soils.
/05003AA /05004AA	**Nectarine** **Peach**	0.05 ppm (N) (stone fruits)
	0.5-1 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving less than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on fine textured soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.
	1-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on bearing or nonbearing established plantings in areas receiving less than 20 inches average annual rainfall.
	2 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For the control of rhizome johnsongrass on nonbearing or bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Nectarine cluster (continued)	
		diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating. This will prevent field bindweed from emerging.
/15015AA	Okra	0.05 ppm (N) (seed and pod vegetables)
	1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (1.75% G) (5% G)	Preplant. Broadcast. Apply up to [illegible] weeks before planting.
	1.67-2.5 oz product/100 sq.ft (1.75% G)	Preplant. Broadcast. Apply the lower dosage on sandy soils containing 2 to 5 percent organic matter and the higher dosage on sandy soils containing 5 to 10 percent organic matter.
	0.5-1 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.
/14011AA	Onion, Dry	0.05 ppm (N) (root vegetables) Avoid spraying the onion tops or [illegible]
	0.38-0.63 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed spray between the rows.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/02006AA	Orange	0.05 ppm (N) (citrus fruits)
	1-2 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on bearing or nonbearing, established plantings.
	2 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For the control of rhizome johnsongrass on nonbearing and bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating to prevent field bindweed from emerging.
	Peach	See Nectarine cluster.
/28016AA	Peas	0.05 ppm (N) (seed and pod vegetables, forage legumes)
	0.38-0.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, OR and WA for the control of wild oats. Preplant. Broadcast. Apply from 3 weeks up to immediately before planting. Tank mix with diallate; or triallate.
/28074AA	Peas, Dry	0.05 ppm (N) (seed and pod vegetables, forage legumes)
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Peas, Dry (continued)	
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, OR and WA. Fall application. Broadcast.
/15009AA	Peas, English	0.05 ppm (N) (seed and pod vegetables, forage legumes)
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast.
	0.38-0.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, OR and WA. Preplant. Broadcast. Apply up to 3 weeks before planting. Tank mix with triallate.
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, OR and WA. Broadcast. Fall application.
/15008AA	Peas, Field	0.05 ppm (N) (seed and pod vegetables, forage legumes) General Information: Field peas includes cowpeas and blackeyed peas.
	1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (1.75% G) (5% G)	Preplant. Broadcast. Apply up to 10 weeks before planting.
	1.67-2.5 oz product/100 sq.ft (1.75% G)	Preplant. Broadcast. Apply the lower dosage on sandy soils containing 2 to 5 percent organic matter and the higher dosage on sandy soils containing 5 to 10 percent organic matter.
	0.5-1 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant or preemergence. Broadcast. Apply before or immediately after planting. Use 0.5 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter and 1 lb a.i. on soils containing 5 to 10 percent organic matter.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/26015AA	**Peanuts**	0.05 ppm (N) (peanuts, forage legumes) 0.1 ppm (hulls)
	0.5-0.75 (10% WP)	Preemergence. Broadcast. Formulated with diphenamid.
	(Spanish) 0.5 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to OK and TX. Preplant or preemergence. Broadcast. Apply to coarse textured soils before planting, at planting or immediately after planting. Do not disturb the seed when incorporating after planting.
	0.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to OK and TX. Preplant. Broadcast. Apply up to 10 days prior to planting to coarse textured soils. Tank mix with vernolate.
	(Florunner, Florigiant) 0.5-0.75 (4 lb/gal EC)	Preplant. Broadcast. For use on coarse and medium textured soils.
/03008AA	**Pecan**	0.05 ppm (N) (nuts)
	0.5-1 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. on fine textured soils containing 2 to 5 percent organic matter.
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving less than 20 inches average annual rainfall. Use the 0.75 lb a.i. or more on fine textured soils containing 2 to 5 percent organic matter.
	1 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on soils containing 5 to 10 percent organic matter on new plantings.
	1-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on nonbearing, or bearing, established plantings in areas receiving more than 20 inches average annual rainfall.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Pecan (continued)	
	2 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For the control of rhizome johnsongrass on nonbearing and bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating. This will prevent field bindweed from emerging.
/28017AA	**Peppers**	0.05 ppm (N) (fruiting vegetables) Do not apply after transplanting.
	1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (5% G)	Pretransplant. Broadcast.
	1.67-2.5 oz product/100 sq.ft (1.75% G)	Pretransplant. Broadcast. Apply the lower dosage on sandy soils containing 2 to 5 percent organic matter and the higher dosage on sandy soils containing 5 to 10 percent organic matter.
	0.5-1 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Pretransplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/05005AA /05006AA	Plum Prune	0.05 ppm (N) (stone fruits)
	1-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Directed application. For use on bearing or nonbearing, established plantings in areas receiving less than 20 inches average annual rainfall.
/14013AA	Potato	0.05 ppm (N) (root vegetables) General Information: Do not use in ME. Uniformly cover the bed and furrow with a treated layer of soil. If the treated layer is not uniform and the trifluralin is concentrated over the bed, potato emergence may be retarded and stem brittleness may occur. Do not completely cover the foliage with treated soil after potato plants have fully emerged. Do not completely cover the foliage at subsequent cultivations. Do not damage potato seed pieces or elongated sprouts with incorporation machinery.
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. Apply after planting, before emergence or immediately following drag-off, or after potato plants have fully emerged. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall.
	0.38 (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, OR and WA. Preplant or postemergence. Broadcast. For postemergence applications apply when potato plants have fully matured. Do not apply to soils containing 2 percent or more organic matter.
	0.75 (4 lb/gal EC) (5 lb/gal EC)	For use on coarse and medium textured soils containing 2 to 5 percent organic matter. Broadcast. Apply after planting, before emergence, or immediately following drag-off, or after potato plants have fully emerged.
	1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to all states except ME. For use on soils containing 5 to 10 percent organic matter. Broadcast. Apply after planting, before emergence, or immediately following drag-off, or after potato plants have fully emerged.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Potato (continued)	
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to KS, MN, NE, ND, OK, SD and TX. Broadcast. Apply after planting, but prior to crop emergence. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. on coarse and medium textured soils containing 2 to 5 percent organic matter, and 1 lb a.i. on coarse and medium textured soils containing 5 to 10 percent organic matter. In areas where potatoes are normally dragged-off, apply and incorporate up to or immediately after drag-off. Tank mix with eptam.
	0.38 (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, OR and WA. Preplant. Broadcast. Tank mix with eptam.
	(Irish) 1.25-2.5 oz product/100 sq.ft (1.47% G)	Posttransplant. Broadcast.
	Prune	See Plum cluster.
/28051AA	Rape	0.05 ppm (seed, straw)
	0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to all states except AK. Preplant. Broadcast. Apply in the fall, or in the spring prior to seeding.
/28076AA	Safflower	0.05 ppm (N) (seed)
	0.5-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Apply in the spring before planting, or in the fall. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 to 1 lb a.i. on soils with 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on soils with 5 to 10 percent organic matter.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Safflower (continued)	
	1-1.5 (5% G) (4 lb/gal EC)	Preplant. Broadcast. For use in areas receiving less than 20 inches average annual rainfall and having soils with 10 to 20 percent organic matter.
	0.75-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to AZ, CA, ID, MT, NV, OR, UT, WA and WY. Fall application. Broadcast.
	0.5-1 (5% G)	Use limited to ID, MT, NV, ND, OR, SD, UT, WA and WY. Broadcast. Fall application. Use 0.75 lb a.i. or more on coarse textured soils with 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.
/28019AA	Sorghum	0.05 ppm (grain crops, forage, fodder)
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Broadcast or directed spray. For the control of shattercane. May be tank mixed with atrazine.
/24006AA	Sorghum, Milo	0.05 ppm (grain crops, forage, fodder)
	0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed or over-the-top spray. Prior to application, cultivate to remove established weeds and to cover the base of the plants with soil. Apply only after the crop is well established (8 inches or taller). Use the lower dosage rate when light weed pressure is anticipated, and the higher dosage when heavy weed pressure is anticipated.
/28023AA	Soybeans	0.05 ppm (N) (seed and pod vegetables, forage legumes General Information: Plant only rice or crops for which trifluralin can be applied as a preplant treatment in the season following a double rate treatment. Plant after early season adverse weather conditions have passed, especially when using higher rate programs. Cool, wet weather early in the growth cycle causes additional stress to the soybean plant, which may result in reduced stands, delayed maturity and reduced yields. Rice control is a 2 year program. Use the rates listed for the first year and plant soybeans. For the second year, use the normal rates listed for soil

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Soybeans (continued)	
	types and charcoal level and plant only those crops for which trifluralin can be applied as a preplant treatment. Do not plant rice the second year. Rice may be planted the third year.
0.5-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant or preemergence. Broadcast. Use 0.75 to 1 lb a.i. on soils containing 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on soils containing 5 to 10 percent organic matter.
1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For the control of fall panicum on coarse and medium textured soils.
0.5-0.75 (0.2% G) (0.25% G)	Preplant. Broadcast.
1-1.25 (0.35% G) (0.5% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to AL, AR, northern FL, GA, LA, MS, southeastern MO bootheel, NC, OK, SC, TN and TX. Broadcast. Fall application.
0.5-1.25 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Broadcast. Fall application. Use 0.75 lb a.i. on coarse textured soils with 2 to 5 percent organic matter, and 1 to 1.25 lb a.i. on soils with 5 to 10 percent organic matter.
0.5-1 (5% G)	Use limited to ID, MN, MT, ND, OR, SD, WA and WY. Preplant. Broadcast. Apply in the spring before planting, or in the fall after September 1.
0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AL, AR, FL, GA, KS, LA, MS, southeastern MO, NC, OK, SC, TN and southern VA. Preplant. Broadcast. For the control of pigweed and seedling johnsongrass. In LA, use an additional 0.5 lb a.i per acre for control.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Soybeans (continued)	
0.75-1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to the TX Gulf Coast counties of Brazoria, Calhoun, Chambers, Fort Bend, Galveston, Harris, Jackson, Jefferson, Liberty, Matagorda, Orange, Victoria, Waller and Wharton. Preplant. Broadcast. Apply up to 2 weeks before planting.
0.5-1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to charcoal soils of AR, LA and MS. Preplant. Broadcast.
1-2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA, MS and TX. Preplant. Broadcast. Apply in the spring for partial control or suppression of rice.
	AND
0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA, MS and TX. Preplant. Broadcast. Apply in the spring of the second year for partial control or suppression of rice.
1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA, MS and TX on coarse textured soils with 2 to 5 percent organic matter. Preplant. Broadcast. Apply in the spring for partial control or suppression of rice.
	AND
0.75 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA, MS and TX on coarse textured soils with 2 to 5 percent organic matter. Preplant. Broadcast. Apply in the spring of the second year for partial control or suppression of rice.
2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA, MS and TX on soils with 5 to 10 percent organic matter. Preplant. Broadcast. Apply in the spring for partial control or suppression of rice.
	AND
1-1.25 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA, MS and TX on soils with 5 to 10 percent organic matter. Preplant. Broadcast. Apply in the spring of the second year for partial control or suppression of rice.
	OR

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Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Soybeans (continued)	
0.75-1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to AR, LA and MS on soils with 5 to 10 percent organic matter and having charcoal present. Preplant. Broadcast. Split application. Apply in the spring of the second year for partial control or suppression of rice.
1-2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to the eastern United States and TX. Preplant. Broadcast. Spring or fall application for the control of rhizome johnsongrass. Apply the higher dosage on fine textured soils or on soils with 5 to 10 percent organic matter. Prepare the soil using a chisel plow or similar equipment to bring rhizomes to the soil surface. Follow with a disc 2 times before application to cut the rhizomes into small 2 to 3 inch pieces. Incorporate to a depth of 4 to 6 inches. To remove escaped plants, cultivation during growing season is necessary. Apply for 2 consecutive years.
	OR
0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to the eastern United States and TX. Preplant. Broadcast. Split application for the control of rhizome johnsongrass. Apply the higher dosage on fine textured soils or on soils with 5 to 10 percent organic matter. Prepare the soil using a chisel plow or similar equipment to bring rhizomes to the soil surface. Follow with a disc 2 times before application to cut the rhizomes into small 2 to 3 inch pieces. Incorporate to a depth of 4 to 6 inches. To remove escaped plants, cultivation during growing season is necessary. Apply both in the spring and the fall for 2 consecutive years.
1.5 (4 lb/gal EC) (5 lb/gal EC)	Use limited to the eastern United States and TX. Preplant. Broadcast. Spring or fall application for the control of rhizome johnsongrass on coarse textured soils with 2 to 5 percent organic matter. Prepare the soil using a chisel plow or similar equipment to bring rhizomes to the soil surface.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Soybeans (continued)	
	Follow with a disc 2 times before application to cut the rhizomes into small 2 to 3 inch pieces. Incorporate to a depth of 4 to 6 inches. To remove escaped plants, cultivation during growing season is necessary. Apply for 2 consecutive years.
	OR
0.75 (4 lb/gal EC) (5 lb/gal EC)	Use limited to the eastern United States and TX. Preplant. Broadcast. Split application for the control of rhizome johnsongrass on coarse textured soils with 2 to 5 percent organic matter. Prepare the soil using a chisel plow or similar equipment to bring rhizomes to the soil surface. Follow with a disc 2 times before application to cut the rhizomes into small 2 to 3 inch pieces. Incorporate to a depth of 4 to 6 inches. To remove escaped plants, cultivation during growing season is necessary. Apply both in the spring and fall for 2 consecutive years.
1-2 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For the control of rhizome johnsongrass. Prepare the soil using a chisel plow or similar equipment to bring rhizomes to the soil surface. Follow with a disc 2 times before application to cut the rhizomes into small 2 to 3 inch pieces. Incorporate to a depth of 4 to 6 inches. To remove escaped plants, cultivation during growing season is necessary. Apply up to 2 weeks before planting for 2 consecutive years. Tank mix with metribuzin.
0.5-1.25 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For the control of shattercane. Incorporate to a depth of 4 to 6 inches using 2 passes in opposite directions. For continued control, cultivate during the growing season.
0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Apply up to 14 days days prior to planting. Tank mix with chloramben, ammonium salt; vernolate; alachlor; metribuzin; metolachlor; or chloramben, ammonium salt and metribuzin.
	OR

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Soybeans (continued)	
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Follow with an overlay application of chloramben; alachlor; metribuzin; or metolachlor.
	0.28-0.56 (1.5 lb/gal EC)	Preplant. Broadcast. Incorporate within 3 days after application. May be tank mixed with chloramben; or metribuzin. Formulated with oryzalin.
/28020AA	Sugar Beets	0.05 ppm (N) (root vegetables) General Information: Cover exposed beet roots with soil before applying to reduce the possibility of girdling. Do not damage sugar beet taproot with machinery.
	0.5-0.75 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Broadcast. Apply as an over-the-top spray when plants are 2 to 6 inches tall. Use the higher dosage rate on medium and fine textured soils receiving more than 20 inches average annual rainfall. Set incorporation machinery to throw treated soil towards the plants in the row.
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA, CO, ID, KS, MT, NE, OR, TX, UT, WA and WY. Postemergence. Broadcast. Incorporate with a tine-tooth harrow set to cut 1 or 2 inches deep, 2 times over the field in opposite directions.
	0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Broadcast. Use 0.63 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Apply anytime after the first true leaves have formed until the beets are 6 inches tall. Tank mix with eptam.
/25003AA	Sugarcane	0.05 ppm (N)
	(plant cane) 1-2 (4 lb/gal EC) (5 lb/gal EC)	Postplant. Broadcast. Apply in the fall on firmly packed beds immediately after seed pieces are planted. Do not damage seed pieces with incorporation equipment.

AND

TRIFLURALIN

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Sugarcane (continued)	
1-2 (4 lb/gal EC) (5 lb/gal EC)	Preemergence or postemergence. Broadcast. Apply in the spring before or shortly after the cane emerges. Loosen rain packed beds 2 to 3 inches deep before application. Do not damage seed pieces or emerging shoots with incorporation equipment.
3-4 (4 lb/gal EC) (5 lb/gal EC)	Use limited to HI for the control of most annual grasses, including guineagrass. Postplant. Broadcast. Apply to the soil surface before weeds and cane emerge. Form or roll beds before application. Rainfall or sprinkler irrigation is necessary immediately after application.
(ratoon cane) 3-4 (4 lb/gal EC) (5 lb/gal EC)	Use limited to HI for the control of most annual grasses, including guineagrass. Postharvest. Broadcast. Apply to the soil surface before weeds emerge. Remove crop residue before application. Rainfall or sprinkler irrigation is necessary immediately after application.
(plant cane and ratoon cane) 1-2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to LA and TX. Preemergence or postemergence. Broadcast. Apply in the spring from before or shortly after the cane emerges up to layby, and after the beds have been shaved or false shaved. Before application, loosen rain packed beds 2 to 3 inches deep. Do not damage seed pieces or emerged shoots with incorporation equipment. For layby applications, a rolling cultivator or bed chopper may be used for incorporation. Incorporate to a depth of 3 to 4 inches when using bed chopper and 2 to 4 inches deep when using rolling cultivator.
2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to LA for the control of itchgrass. Postemergence. Broadcast. Apply at layby. Use a rolling cultivator or bed chopper for incorporation. Incorporate to a depth of 4 inches when using bed chopper and 2 to 4 inches deep when using rolling cultivator.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/28021AA	**Sunflower**	0.05 ppm (N) (seed)
	1.25-2.5 oz product/100 sq.ft (5% G)	Preplant. Broadcast.
	0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter. Apply in the spring or the fall.
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. Tank mix with chloramben.
		OR
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. May be followed by a broadcast or band overlay application of chloramben at planting.
	0.5-1 (4 lb/gal EC) (5 lb/gal EC)	Use limited to MN, ND and SD. Preplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Apply in the spring prior to planting or in the late fall before the ground freezes. Tank mix with eptam.
	Tangelo	See Grapefruit cluster.
	Tangerine	See Grapefruit cluster.
/11005AA	**Tomato**	0.05 ppm (N) (fruiting vegetables) General Information: Do not apply after transplanting.
	(direct seeded) 1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (5% G)	Preplant. Broadcast. Apply up to 10 weeks before planting.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Tomato (continued)	
0.25 (3.1% WP)	Use limited to CA. For use on tomatoes grown for processing. Preplant. Broadcast. Formulated with diphenamid.
0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed application. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter. Apply after blocking or thinning to the soil between the rows and beneath the plants.
(transplant) 1.25-2.5 oz product/100 sq.ft (0.93% G) (1.47% G) (1.75% G) (5% G)	Pretransplant. Broadcast.
1.67-2.5 oz product/100 sq.ft (1.75% G)	Pretransplant. Broadcast. Apply the lower dosage on sandy soils containing 2 to 5 percent organic matter and the higher dosage on sandy soils containing 5 to 10 percent organic matter.
0.5-1 (0.2% G) (0.25% G) (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Pretransplant. Broadcast. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.
/13026AA Turnip	0.05 ppm (N) (leafy vegetables)
0.5-0.75 (0.2% G) (0.25% G)	Preplant. Broadcast. For use on turnip greens grown for processing.
0.38-1 (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on turnip greens grown for processing. Apply the lower dosage for anticipated light weed pressure and the higher dosage for anticipated heavy weed pressure.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/03009AA	**Walnut**	0.05 ppm (N) (nuts)
	0.5-1 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Preplant. Broadcast. For use on new plantings in areas receiving less than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on fine textured soils containing 2 to 5 percent organic matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter.
	1-2 (10% G) (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For use on bearing or nonbearing, established plantings in areas receiving less than 20 inches average annual rainfall.
	2 (4 lb/gal EC) (5 lb/gal EC)	Broadcast. For the control of rhizome johnsongrass on nonbearing and bearing, established plantings in areas receiving less than 20 inches average annual rainfall. Thoroughly work the soil to bring rhizomes nearer the surface. Incorporate to a depth of 4 to 6 inches. To control escaped johnsongrass, cultivate occasionally during growing season. Apply for 2 years in a row. Do not use this dosage rate on new plantings. Do not interplant with other crops. If treated areas are diverted to other crop uses, plant only those crops registered for preplant treatments of trifluralin for the next cropping season.
	2 (4 lb/gal EC) (5 lb/gal EC)	Use limited to CA for the control of field bindweed. Subsurface injection. Apply in the spring using spray blades set to incorporate to a soil depth of 4 to 6 inches in 40 to 80 gallons of water per acre. Prior to application, destroy all weeds. If soil develops cracks, eliminate by shallow cultivating to prevent field bindweed from emerging.
/10008AA	**Watermelon**	0.05 ppm (N) (cucurbits)
	1.25-2.5 oz product/100 sq.ft (5% G)	Postemergence. Broadcast. Apply to dry foliage when plants have 3 to 4 true leaves.
	0.5-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Postemergence. Directed application. Use 0.75 lb a.i. or less in areas receiving less than 20 inches average annual rainfall, and the entire dosage range in areas receiving more than 20 inches average annual rainfall. Use 0.75 lb a.i. or more on soils containing 2 to 5 percent organic

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Watermelon (continued)	
		matter, and 1 lb a.i. on soils containing 5 to 10 percent organic matter. Apply to the soil between the rows and beneath plants which are in the 3 to 4 true leaf stage. Set incorporation equipment to throw treated soil around the plants during incorporation.
/24007AA	Wheat	0.05 ppm (N) (grain, straw) General Information: Wheat planted in direct contact with treated soil may suffer crop injury in the form of delayed emergence and development.
	(winter) 0.75-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to ID, MT, OR and WA for the control of cheat and other weeds. Preplant. Broadcast. Apply from 3 weeks up to planting. Incorporate to a depth of 1 to 2 inches using a flex-tine harrow. Do not till the soil with a disc after incorporating with a flex-tine harrow. Plant seed below the zone of treated soil.
	0.75-1 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Use limited to OR and WA. Preplant. Broadcast. Apply to fallow land up to 4 months ahead of planting from May to September. Incorporate to a depth of 1 to 2 inches using a flexible tine-tooth harrow. Do not till the soil with a disc after incorporating with a flexible tine harrow. Plant seed below the zone of treated soil.
	(spring, durum) 0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Postplant. Broadcast. For the control of foxtail. Plant seed 2 to 3 inches deep in a well tilled seedbed. Incorporate to a depth of 1 to 1.5 inches using a flex-tine or diamond harrow. Both incorporations must be done within 24 hours.
	0.5-0.75 (5% G) (10% G) (4 lb/gal EC) (5 lb/gal EC)	Fall application for the control of foxtail. Broadcast. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to incorporate to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Wheat (continued)	
0.75-1 (5% G)	Use limited to ID, MN, ND, OR, SD, WA and WY for the control of foxtail in summer fallow. Preplant. Broadcast. Apply the lower dosage between July 1 and August 31, and the higher dosage between April 15 and June 30. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to incorporate to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.
0.5-0.75 (5% G)	Use limited to ID, MN, ND, OR, SD, WA and WY. Fall application for the control of foxtail. Broadcast. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to incorporate to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.
0.5-0.75 (4 lb/gal EC) (5 lb/gal EC)	Postplant. Broadcast. For the control of foxtail and wild oat. Incorporate to a depth of 1 to 1.5 inches deep using flex-tine or diamond harrows. Plant seed 2 to 3 inches deep in a well tilled seedbed. Tank mix with triallate.
0.63-1 (10% G)	For the control of foxtail in summer fallow. Preplant. Broadcast. Apply the lower dosage in August, 0.75 lb a.i per acre in July, 0.88 lb a.i. per acre in June, and the higher dosage between mid-April through May. Use a chisel plow (first pass only) set to incorporate to a depth of 4 to 5 inches, tandem disc set to incorporate to a depth of 3 to 4 inches, or a field cultivator set to a depth of 3 to 4 inches. Plant seed approximately 2 inches deep the following spring.

Site, Dosage and Formulation (lb a.i./A) | Tolerance, Use, Limitations

TERRESTRIAL NON-FOOD CROP

(Ornamental Plants and Forest Trees)

General Warnings and Limitations: Application can be made broadcast and soil incorporated, or as a surface application and watered into the soil. Plantings should be well established prior to application. Make applications when the foliage is dry, and water plants lightly to wash the chemical from the leaves. Repeat applications can be made in 4 to 6 weeks for continued weed control. Do not apply to Ajuga, Dichondra, Myrtle or Pachysandra.

/31010AA	Achillea
/31013AA	Ageratum
/31023AA	Arctotis
/31050AA	Calendula
/31051AA	California Poppy
/31059AA	Centaurea
/31076AA	Coreopsis
/31077AA	Cosmos
/31084AA	Dahlias
/31087AA	Dianthus
/31091AA	Dimorphotheca
/31101AA	Forget-Me-Not
/31102AA	Four O'Clock
/31105AA	Gaillardia
/31106AA	Garden Balsam
/31121AA	Hollyhock
/34077AA	Ixora
/31133AA	Lobelia
/31135AA	Lupines
/31137AA	Marigold
/31140AA	Morning-Glory
/31143AA	Nasturtium
/31286AA	Nicotiana
/34109AA	Periwinkle
/31156AA	Phlox
/31167AA	Rose Moss
/31169AA	Rudbeckia
/31171AA	Salvia
/31173AA	Scabiosa
/31180AA	Shasta Daisy
/31184AA	Snapdragon
/31185AA	Snow-On-The-Mountain
/31188AA	Stocks
/31194AA	Sunflower
/31196AA	Sweet Alyssum
/31197AA	Sweet Pea
/31198AA	Sweet William

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Achillea cluster (continued)	
1.25-2.5 oz product/100 sq.ft (1.47% G)	Pretransplant. Broadcast. Apply and incorporate into the soil. Do not apply after transplanting.
0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
1.25 lb product/ 100 sq.ft (0.37% G)	Broadcast. Apply and incorporate around established plantings.
0.15 oz a.i./100 sq.ft (0.92% G)	
2-4 oz product/ 100 sq.ft (0.93% G)	
1.25-2.5 oz product/100 sq.ft (1.47% G)	
2.13-2.84 oz product/100 sq.ft (1.75% G)	
0.37-0.8 oz product/100 sq.ft (5% G)	
0.5-1 (4 lb/gal EC)	Directed spray. Apply and incorporate around established plantings.
— (1.75% PrD)	Directed spray. Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/31500AA	Adriatic Bellflower	
/31303AA	African Trailing Daisy	
/31423AA	Agapanthus	
/33058AA	Algerian Ivy (ground cover)	
/33086AA	Big Blue Lilyturf (ground cover)	
/31502AA	Blue Ceratostigma	
/31405AA	Christmas Cheer	
/31498AA	Common Thrift	
/31076AA	Coreopsis	
/34045AA	Cotoneaster	
/34563AA	Creeping Wireplant	
/31437AA	Crown Vetch (Ornamental)	
/33130AA	Dwarf Coyotebrush (ground cover)	
/33030AA	English Ivy	
/33128AA	Gazania	
/31993AA	Gazania sangelo	
/31289AA	Germander	
/33139AA	Goldmoss Sedum	
/33138AA	Hypericum coris	
/33124AA	Iceplant (ground cover)	
/31137AA	Marigold	
/33038AA	Mascarenegrass	
/35289AA	Myoporum	
/35290AA	Myoporum laetum	
/34541AA	Needlepoint Ivy	
/33134AA	Osteospermum (ground cover)	
/33094AA	Peruvian Verbena (ground cover)	
/33137AA	Point Reyes Ceanothus	
/31302AA	Rockrose	
/33120AA	Rosemary (ground cover)	
/31503AA	Rupturewort	
/33125AA	Sedum	
/33140AA	Sedum confusum	
/31994AA	Sedum musaneuse	
/31501AA	Serbian Bellflower	
/34209AA	Shrub-Althea	
/31268AA	Snow-In-Summer	
/31419AA	Sprenger Asparagus	
/33126AA	St. John's-Wort (ground cover)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Adriatic Bellflower cluster (continued)	
/33106AA	Strawberry (Ornamental) (ground cover)	
/31455AA	Treasure Flower	
/31206AA	Verbena	
/31207AA	Veronica	
/31499AA	Woolly Yarrow	
	0.15 oz a.i./100 sq.ft (5% G)	Pretransplant. Broadcast. Surface application. Water into soil.
	0.15 oz a.i./100 sq.ft (5% G)	Broadcast. Surface application. Apply around established plantings and water into soil.
	0.15 oz a.i./100 sq.ft (4 lb/gal EC)	Broadcast. Apply and water incorporate with one-half inch of water within 24 hours after application to established plantings.
/35094AA	Apple	
/35024AA	Austrian Pine	
/35025AA	Baldcypress	
/35026AA	Balsam Fir	
/34025AA	Barberry	
/35030AA	Black Locust	
/35031AA	Black Walnut	
/35032AA	Blackgum	
/35033AA	Blue Spruce	
/34031AA	Boxwood	
/34035AA	California Privet	
/35384AA	Carolina Cherry-Laurel	
/34243AA	Cherryberry Cotoneaster	
/35235AA	Chinese Chestnut	
/35155AA	Chinese Juniper	
/31067AA	Cinquefoil	
/34043AA	Common Camellia	
/34405AA	Common Lilac (Alba)	
/35133AA	Cottonwood	
/34244AA	Cranberry Cotoneaster	
/34050AA	Deutzia	
/35044AA	Douglas-Fir	
/35045AA	Eastern Hemlock	
/34450AA	Erect Euonymus	
/34991AA	Euonymus Newport	
/35172AA	European White Birch	

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A.	Tolerance, Use, Limitations
	Apple cluster (continued)	
/34058AA	Firethorn	
/35057AA	Flowering Dogwood	
/34181AA	Golden Bell	
/34246AA	Harlands Boxwood	
/34304AA	Hetzi Holly	
/34372AA	Hiryu Azalea	
/35070AA	Honeylocust	
/34072AA	Honeysuckle	
/34075AA	India Hawthorn	
/34185AA	Indica Azalea	
/35181AA	Intermediate Yew	
/34078AA	Japanese Andromeda	
/34079AA	Japanese Barberry	
/35185AA	Japanese Black Pine	
/35244AA	Japanese Dogwood	
/34080AA	Japanese Holly	
/35186AA	Japanese Larch	
/34310AA	Japanese Pittosporum	
/34188AA	Japanese Privet	
/35072AA	Japanese Yew	
/34429AA	Littleleaf Boxwood	
/35076AA	Loblolly Pine	
/35192AA	London Plane	
/34094AA	Mock-Orange	
/34097AA	Mountain-Laurel	
/35092AA	Northern White-Cedar	
/35089AA	Norway Maple	
/35090AA	Norway Spruce	
/35255AA	Pin Oak	
/34112AA	Pineapple Guava	
/35102AA	Prunus	
/35204AA	Red Maple	
/35105AA	Red Oak	
/35106AA	Red Pine	
/35103AA	Redbud	
/35104AA	Redcedar	
/34208AA	Sakaki	
/34122AA	Sandankwa Viburnum	
/34124AA	Sasanqua Camellia	
/35206AA	Scarlet Oak	
/35113AA	Scotch Pine	
/35209AA	Shore Juniper	
/35211AA	Silver Maple	
/35117AA	Sugar Maple	
/34133AA	Sweet Viburnum	
/35118AA	Sweetgum	
/35119AA	Sycamore	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Apple cluster (continued)	
/34218AA	Thorny Elaeagnus	
/35120AA	Tuliptree	
/34223AA	Vanhoutte Spirea	
/34258AA	Viburnum Doublefile	
/34224AA	Weigela Bristol Ruby	
/35227AA	White Ash	
/35126AA	White Pine	
/35127AA	White Spruce	
/35128AA	Willow	
/34232AA	Winged Euonymus	
/34074AA	Wright Viburnum	
/35253AA	Yew Podocarpus	
	0.37-0.8 oz product/100 sq.ft (5% G)	Pretransplant or posttransplant. Broadcast. Soil incorporation.
	0.15 oz a.i./100 sq.ft (5% G)	Pretransplant. Broadcast. Surface application. Water into soil.
	0.15 oz a.i./100 sq.ft (5% G)	Broadcast. Surface application. Apply around established plantings and water into soil.
	0.5-1 (4 lb/gal EC)	Pretransplant. Broadcast. Apply and incorporate prior to planting.
		OR
	0.5-1 (4 lb/gal EC)	Directed spray. Apply and incorporate around established plantings.
/31026AA	Aster	
/31057AA	Carnation	
/31154AA	Petunias	
/31213AA	Zinnia	
	1.25-2.5 oz product/100 sq.ft (1.47% G)	Pretransplant. Broadcast. Apply and incorporate into the soil. Do not apply after transplanting.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Aster cluster (continued)	
2 lb product/100 sq.ft (0.095% G)	Broadcast. Apply and incorporate around established plants. Water the treated area and repeat treatment every 6 weeks. Do not use on newly seeded or planted flower beds. Formulated with di-syston.
0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
1.25 lb product/ 100 sq.ft (0.37% G)	Broadcast. Apply and incorporate around established plantings.
2-4 oz product/ 100 sq.ft (0.93% G)	
1.25-2.5 oz product/100 sq.ft (1.47% G)	
2.13-2.84 oz product/100 sq.ft (1.75% G)	
0.37-0.8 oz product/100 sq.ft (5% G)	
0.15 oz a.i./100 sq.ft (0.92% G) (1.15% G)	
0.5-1 (4 lb/gal EC)	Directed spray. Apply and incorporate around established plantings.
— (1.75% PrD)	Directed spray. Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/3-500AA	**Azalea Hybrids/Cultivars**	
	1.88-2.5 lb product/100 sq.ft (0.095% G)	Broadcast. Apply uniformly around established plants starting 4 inches from base. Incorporate lightly into soil and repeat every 6 weeks. Formulated with di-syston.
	9.6-10 oz product/ 100 sq.ft (0.74% G)	Broadcast. Apply and incorporate around established plantings.
	0.15 oz a.i./100 sq.ft (0.92% G)	
/31065AA	**Chrysanthemum**	
	1.25-2.5 oz product/100 sq.ft (1.47% G)	Pretransplant. Broadcast. Apply and incorporate into the soil. Do not apply after transplanting.
	2 lb product/100 sq.ft (0.095% G)	Broadcast. Apply and incorporate around established plantings and incorporate to a depth of 1 to 2 inches. Water the treated area and repeat treatment every 6 weeks. Do not use on newly seeded or planted flower beds. Formulated with di-syston.
	0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
	2-4 oz product/ 100 sq.ft (0.93% G)	Broadcast. Apply and incorporate around established plantings.
	1.25-2.5 oz product/100 sq.ft (1.47% G)	
	0.37-0.8 oz product/100 sq.ft (5% G)	
	0.5-1 (4 lb/gal EC)	Directed spray. Apply and incorporate around established plantings.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Chrysanthemum (continued)	
	— (1.75% PrD)	Directed spray. Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.
/31083AA /31025AA	Daffodil Tulips	
	2.13-2.84 oz product/100 sq.ft (1.75% G)	Broadcast. Apply and incorporate around established plantings.
/35043AA	Dogwood	
	10 oz product/100 sq.ft (0.74% G)	Broadcast. Apply and incorporate around established plantings.
/31111AA	Gladiolus	
		General Information: Corms less than 1 inch in diameter may be injured by preplant applications.
	1.25-2.5 oz product/100 sq.ft (1.47% G)	Pretransplant. Broadcast. Apply and incorporate into the soil. Do not apply after transplanting.
	0.37-0.8 oz product/100 sq.ft (5% G)	
	0.5-1 (4 lb/gal EC)	
	2-2.5 lb product/ 100 sq.ft (0.17% G) (0.174% G)	Broadcast. Apply around established plantings and incorporate to a depth of 1 inch. Water the treated area and repeat treatment in 4 weeks. Do not use when planting from seed. Formulated with di-syston.
	0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
	1.25 lb product/ 100 sq.ft (0.37% G)	Broadcast. Apply and incorporate around established plantings.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Gladiolus (continued)	
	1.25-2.5 oz product/100 sq.ft (1.47% G)	
	2.13-2.84 oz product/100 sq.ft (1.75% G)	
	0.37-0.8 oz product/100 sq.ft (5% G)	
	0.15 oz a.i./100 sq.ft (0.92% G) (1.15% G)	
	0.5-1 (4 lb/gal EC)	Directed spray. Apply and incorporate around established plantings.
	— (1.75% PrD)	Directed spray, Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.
/34089AA	Lilac	
	1.88-2.5 lb product/100 sq.ft (0.095% G)	Broadcast. Apply uniformly around established plants starting 4 inches from base. Incorporate lightly into soil and repeat every 6 weeks. Formulated with di-syston.
/35000AA	Ornamental and/or Shade Trees	
	0.37-0.8 oz product/100 sq.ft (5% G)	Pretransplant. Broadcast. Apply and incorporate into the soil. Do not apply after transplanting.
	1.25 lb product/100 sq.ft (0.37% G)	Broadcast. Apply and incorporate around established plantings.
	2-4 oz product/100 sq.ft (0.93% G)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Ornamental Flowering Plants (continued)	
	0.15 oz a.i./100 sq.ft (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
	0.15 oz a.i./100 sq.ft (1.15% G)	Broadcast. Apply and incorporate around established plantings.
	1 cup product (by volume)/100 sq.ft (2.65% G)	
	0.37-0.8 oz product/100 sq.ft (5% G)	
/34004AA	Ornamental Woody Shrubs	
	0.37-0.8 oz product/100 sq.ft (5% G)	Pretransplant. Broadcast. Apply and incorporate into the soil. Do not apply after transplanting.
	2.5-3.13 lb product/100 sq.ft (0.17% G) (0.174% G)	Broadcast. Apply and incorporate around established plants and water the treated area. Formulated with di-syston.
	0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
	1.25 lb product/100 sq.ft (0.37% G)	Broadcast. Apply and incorporate around established plantings.
	2-4 oz product/100 sq.ft (0.93% G)	
	1.25-2.5 oz product/100 sq.ft (1.47% G)	

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/34007AA	Ornamental Deciduous Shrubs	
/35006AA	Ornamental Deciduous Trees	
/33009AA	Ornamental Ground Covers	
	4.5 cups product (by volume)/100 sq.ft or 3.75 cups product (by volume)/ 10 ft drip zone diameter (0.68% G)	Broadcast. Apply around established plantings and repeat in 2 to 3 months. Incorporate to a depth of 1 inch and water the treated area. For year round control, a third treatment may be made in mid-fall.
/32005AA	Ornamental Evergreens	
	1.88-2.5 lb product/100 sq.ft (0.095% G)	Broadcast. Apply around established plants starting 4 inches from base. Incorporate lightly into soil and repeat every 6 weeks. Formulated with di-syston.
	4.5 cups product (by volume)/100 sq.ft or 3.75 cups product (by volume)/ 10 ft dripzone diameter (0.68% G)	Broadcast. Apply around established plantings and repeat in 2 to 3 months. Incorporate to a depth of 1 inch and water the treated area. For year round control, a third treatment may be made in mid-fall.
	9.6-10 oz product/ 100 sq.ft (0.74% G)	Broadcast. Apply and incorporate around established plantings.
	0.15 oz a.i./100 sq.ft (0.92% G) (1.15% G)	
/31003AA	Ornamental Flowering Plants	
	2-2.5 lb product/ 100 sq.ft (0.17% G) (0.174% G)	Broadcast. Apply around established plantings and incorporate to a depth of 1 inch. Water the treated area and repeat treatment in 4 to 6 weeks. Do not use when planting from seed. Formulated with di-syston.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Ornamental and/or Shade Trees (continued)	
	1.25-2.5 oz product/100 sq.ft (1.47% G)	
	2.12-2.84 oz product/100 sq.ft (1.75% G)	
	1 cup product (by volume)/100 sq.ft (2.65% G)	
	0.37-0.8 oz product/100 sq.ft (5% G)	
	0.15 oz a.i./100 sq.ft (0.92% G) (1.15% G)	
	0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
	— (1.75% PrD)	Directed spray. Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.
/31005AA	Ornamental Bulb Plants	
	2-2.5 lb product/100 sq.ft (0.17% G) (0.174% G)	Broadcast. Apply around established plantings and incorporate to a depth of 1 inch. Water the treated area and repeat treatment in 4 to 6 weeks. Formulated with di-syston.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	Ornamental Woody Shrubs (continued)	
	2.13-2.84 oz product/100 sq.ft (1.75% G)	
	1 cup product (by volume)/100 sq.ft (2.65% G)	
	0.37-0.8 oz product/100 sq.ft (5% G)	
	0.15 oz a.i./100 sq.ft (0.92% G) (1.15% G)	
	— (1.75% PrD)	Directed spray. Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.
/34118AA	**Rhododendron Hybrids/ Cultivars**	
	1.88-2.5 lb product/100 sq.ft (0.095% G)	Broadcast. Apply around established plants starting 4 inches from base. Incorporate lightly into soil and repeat every 6 weeks. Formulated with di-syston.
	10 oz product/100 sq.ft (0.74% G)	Broadcast. Apply and incorporate around established plantings.
	0.15 oz a.i./100 sq.ft (0.92% G)	
/34120AA	**Rose**	
	2 oz product/plant (0.095% G)	Broadcast. Apply and incorporate around established plants. Water the treated area and repeat treatment at 6 week intervals. Formulated with di-syston.

Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
Rose (continued)	
4 oz product/plant (0.17% G) (0.174% G)	Broadcast. Apply and incorporate around established or newly transplanted rose bushes. Water the treated area and repeat treatment at 4 to 6 week intervals. Do not apply directly into planting hole. Formulated with di-syston.
0.15 oz a.i./100 sq.ft (1.47% G) (5% G)	Broadcast. Surface application. Apply around established plantings and water the treated area.
1.25 lb product/ 100 sq.ft (0.37% G)	Broadcast. Apply and incorporate around established plantings.
2-4 oz product/100 sq.ft (0.93% G)	
1.25-2.5 oz product/100 sq.ft (1.47% G)	
0.37-0.8 oz product/100 sq.ft (5% G)	
0.15 oz a.i./100 sq.ft (0.92% G) (1.15% G)	
0.5-1 (4 lb/gal EC)	Directed spray. Apply and incorporate around established plantings.
— (1.75% PrD)	Directed spray. Apply to soil with bands 6 to 8 inches apart at the rate of 2 to 3 feet per second. Rake lightly into soil.

TRIFLURALIN

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
	(Noncrop, Wide Area, And General Outdoor Treatments)	
/670010A /670150A /670040A /670130A /670090A /670110A /670050A /670060A /650130A	Airport Runways Fencerows (Non-agricultural) Firebreaks	
	4-8 (4% G)	Broadcast. Surface application. Formulated with tebuthiuron.
/670040A	Highway Rights-of-Way	General Information: Highway Rights-of-Way include areas around guardrails, signposts, markers and road shoulders. Refer to Airport Runways cluster for use and limitation information.
/670090A	Industrial Sites	General Information: Industrial Sites include areas around buildings, lumberyards and tank farms. Refer to Airport Runways cluster for use and limitation information.
/670110A	Paved Surfaces	
	12-16 (4 lb/gal EC) or 0.28-0.38 lb a.i./ 1,000 sq.ft (4 lb/gal EC)	Prepaving application. Prepare soil surface according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present, remove by scraping with a grader blade. Do not move soil following an application, and do not apply to areas where asphalt is to be layed directly on top of soil. Apply in a minimum of 150 gallons of water per acre. Refer to Airport Runways cluster for additional use and limitation information.

	Site, Dosage and Formulation (lb a.i./A)	Tolerance, Use, Limitations
/670050A	Railroad Rights-of-Way	General Information: Railroad Rights-of-Way include areas around ballast, yards and roadbeds. Refer to Airport Runways cluster for use and limitation information.
/670060A	Utility Rights-of-Way	General Information: Utility Rights-of-Way include areas around substations, transmission towers, and poles. Refer to Airport Runways cluster for use and limitation information.
	AQUATIC NON-FOOD	
	(Aquatic Sites)	
/650130A	Ditchbanks	Refer to TERRESTRIAL NON-FOOD CROP, Airport Runways cluster for use and limitation information.
	AERIAL AND TANK MIX APPLICATIONS	
9001500 AAAAAAA	Aerial Application	
	--	Refer to TERESTRIAL FOOD CROP (Agricultural Crops) All sites
9900300 AAAAAAA	Tank Mix	
	--	Refer to TERESTRIAL FOOD CROP (Agricultural Crops) Barley, Beans (Dried Type), Cotton, Corn, Peas, Peas (English), Peanuts, Potato, Sorghum, Soybeans, Sugar Beets, Sunflower, Wheat

TRIFLURALIN

Listing of Registered Pesticide Products by Formulation

&095.0001 95% technical chemical
trifluralin (036101)
001471-00070

&097.0001 97% technical chemical
trifluralin (036101)
002749-00294 019713-00109 033660-00003

&098.0001 98% technical chemical
trifluralin (036101)
011603-00013

&244.5002 44.5% formulation intermediate
trifluralin (036101)
001471-00072

&246.0002 46% formulation intermediate
trifluralin (036101)
011603-00014

&000.0954 0.095% granular
trifluralin (036101) plus 0,0-diethyl s-[2-(ethylthio)ethyl]phosphorodithioate (032501)
005887-00062

&000.1704 0.17% granular
trifluralin (036101) plus 0,0-diethyl s-[2-(ethylthio)ethyl]phosphorodithioate (032501)
006993-00029 042057-00078

&000.1744 0.174% granular
trifluralin (036101) plus 0,0-diethyl s-[2-(ethylthio)ethyl]phosphorodithioate (032501)
000239-02292

&000.2004 0.2% granular
trifluralin (036101)
006735-00228

&000.2504 0.25% granular
trifluralin (036101)
006735-00236

&000.3504 0.35% granular
trifluralin (036101)
006735-00233

&000.3704 0.37% granular
trifluralin (036101)
000239-02262

Listing of Registered Pesticide Products by Formulation (continued)

&000.5004 0.5% granular
trifluralin (036101)
006735-00234

&000.6804 0.68% granular
trifluralin (036101)
000538-00083

&000.7404 0.74% granular
trifluralin (036101)
000239-02263 000961-00283

&000.9204 0.92% granular
trifluralin (036101)
000572-00226 000572-00260

&000.9304 0.93% granular
trifluralin (036101)
001598-00215

&001.1504 1.15% granular
trifluralin (036101)
000572-00200 002491-00291

&001.4704 1.47% granular
trifluralin (036101)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

&001.7504 1.75% granular
trifluralin (036101)
000769-00377 000961-00335 006720-00066

&002.6504 2.65% granular
trifluralin (036101)
000538-00102

&004.0004 4% granular
trifluralin (036101) plus tebuthiuron (105501)
001471-00139

&005.0004 5% granular
trifluralin (036101)
000226-00252 000961-00405 001159-00201 001471-00059
001471-00066 001471-00125 009499-00004 042057-00087

&010.0004 10% granular
trifluralin (036101)
001471-00143

TRIFLURALIN

Listing of Registered Pesticide Products by Formulation (continued)

&003.1006 3.1% wettable powder
trifluralin (036101)
001471-00135

&010.0006 10% wettable powder
trifluralin (036101) plus diphenamid (036601)
001471-00136

&101.5012 1.5 lb/gal emulsifiable concentrate
trifluralin (036101) plus oryzalin (104201)
001471-00137

&104.0012 4 lb/gal emulsifiable concentrate
trifluralin (036101)
001386-00609 001471-00035 001471-00065 001471-00116
002749-00219 005481-00172 006735-00215 007001-00193
034704-00241 034704-00242 044215-00073 044215-00106

&105.0012 5 lb/gal emulsifiable concentrate
trifluralin (036101)
001471-00120

&001.7520 1.75% pressurized dust
trifluralin (036101)
004822-00123

9999999 State Label Registrations

AL Reg. No.
006735-05530 006735-05531 006735-05535 038749-10311

AZ Reg. No.
010163-06401 010583-09353

AR Reg. No.
037821-08429 037847-08316 037863-08155

CA Reg. No.
002935-06591 008278-09246 011093-07125

GA Reg. No.
037800-08386 037800-08387 037914-09443

LA Reg. No.
006735-04835 006735-04836 006735-04840 006735-04841
006735-04843 006735-04844

NM Reg. No.
010583-03260

Listing of Registered Pesticide Products by Formulation (continued)

NY Reg. No.
038655-10443

NC Reg. No.
039863-10573

TX Reg. No.
006735-04816 006735-04818 010563-08653

EPA Index to Pesticide Chemicals

TRIFLURALIN

Appendix A

Listing of Common Chemical Names Used on the Entry

Chemical Code	Common Name (source)	EPA Acceptable Common/Chemical Name
032501	Di-Syston	0,0-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate
041401	Eptam	S-Ethyl dipropylthiocarbamate
041404	vernolate	S-Propyl dipropylthiocarbamate
078801	diallate	S-(2,3-Dichloroallyl) diisopropylthiocarbamate
078802	triallate	S-(2,3,3-Trichloroallyl) diisopropylthiocarbamate
101101	metribuzin	4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-trizin-5(4H)-one

Listing by Site/Pest and Site/Formulatio[illegible]istration Number

BROADLEAF WEEDS CONTROLLED:

PADAEBA	Carpetweed
PALAAAC	Chickweed
PBGACBB	Field bindweed
PEMAEBB	Florida pusley
PBDAEAA	Goosefoot
PCOAFBA	Henbit
PEAAGAC	Knotweed
PBDAIBA	Kochia
PBDAEAB	Lambsquarters
PAAAABI	Pigweed
PAFACBC	Prostrate pigweed
PFMAFBB	Puncturevine
PAAAABP	Purslane
PAFACBI	Redroot pigweed
PAFACAB	Rough pigweed
PBDAKBA	Russian thistle
PEAAGAD	Smartweed
PAFACBJ	Spiny amaranth
PBVAGBK	Spotted spurge
PFGAEBA	Stinging nettle

GRASSES AND OTHER MONOCOTS CONTROLLED:

PCACKBA	Annual bluegrass
PCACFBM	Bahiagrass
PCABHBB	Barnyardgrass
PCAATAA	Brome
PCAATBK	Cheat
PCABFAA	Crabgrass
PCABCBA	Crowfootgrass
PCAATBM	Downy brome
PCACEBD	Fall panicum
PCACUAA	Foxtail
PCACUBA	Giant foxtail
PCABIBA	Goosegrass
PCACUBF	Green foxtail
PCACEBH	Guineagrass
PCACOBA	Itchgrass
PCACWBC	Johnsongrass
PCACWBG	Johnsongrass (seedling)
PCABHBA	Junglerice
PCABFBF	Large crabgrass
PCACCBA	Rice
PCACUAC	Robust foxtail
PCABZAA	Ryegrass
PCAAWAA	Sandbur

Listing by Site/Pest and Site/Formulation/Registration Number (cont.)

GRASSES AND OTHER MONOCOTS CONTROLLED (continued)

PCACWBB	Shattercane
PCAARAA	Signalgrass
PCABFED	Smooth crabgrass
PCABYAA	Sprangletop
PCABKBC	Stinkgrass
PCACEBL	Texas panicum
PCABLBB	Woolly cupgrass
PCACUBD	Yellow foxtail

TERRESTRIAL FOOD CROP

(Agricultural Crops)

/23001AA **Alfalfa**
Pests (see list above)
(5% G)
001471-00139

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/03001AA **Almond**
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241

(5 lb/gal EC)
001471-00120

/05001AA **Apricot**
Pests (see list above)
(10% G)
001471-00143

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Apricot (continued)

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241

(5 lb/gal EC)
001471-00120

/16002AA **Asparagus**
Pests (see list above)
(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/28063AA **Barley**
Pests (see list above)
(5% G)
001471-00059 001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/15001AA **Beans, Adzuki**
Pests (see list above)
(5% G)
001471-00059 001471-00125

(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/15001AA **Beans, Dried-Type**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

Listing by Site/Pest and Site/Formulation/Registration Number (continued

Beans, Dried-Type (continued)

(1.75% G)
000961-00335

(5% G)
000226-00252   001471-00059   001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215

(5 lb/gal EC)
001471-00120

/15002AA   Beans, Lima
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280   002217-00480   007401-00349   009198-00060
043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252   001471-00059   009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/15003AA Beans, Snap
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 002217-00480 007401-00349 009198-00060
043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/13005AA Broccoli
Pests (see list above)
(direct seeded)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

Broccoli (continued)

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(transplants)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

13006AA **Brussels Sprouts**
Pests (see list above)
(direct seeded)

(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(transplants)

(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

Listing by Site/Pest and Site/Formulation/Registration Number - continued

Brussels Sprouts (continued)

(5% G)
000226-00252   001471-00059   009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/13007AA   Cabbage
Pests (see list above)
(direct seeded)

(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009198-00060   043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252   001471-00059   009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

Cabbage (continued)

(transplants)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/10002AA Cantaloupe
Pests (see list above)
(1.47% G)
001159-00202 002217-00480 009198-00060

(5% G)
001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

Cantaloupe (continued)

(5 lb/gal EC)
001471-00120

/14003AA **Carrot**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
009499-00004

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/27001AA **Castor Bean**
Pests (see list above)
(5% G)
001471-00059

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/13006AA Cauliflower
Pests (see list above)
(direct seeded)

(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(transplants)

(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

Cauliflower (continued)

(5% G)
000226-00252   001471-00059   009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/13002AA   **Celery**
Pests (see list above)
(direct seeded and transplant)
(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   034704-00241
034704-00242   044215-00073   044215-00106

(5 lb/gal EC)
001471-00120

/02000AA   **Citrus Fruits**
Pests (see list above)
(5% G)
001471-00059

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/13009AA   **Collards**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Collards (continued)

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28007AA **Cotton**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.35% G)
006735-00233

(0.5% G)
006735-00234

(5% G)
001471-00059

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28005AA **Corn**
Pests (see list above)
(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

TRIFLURALIN

Appendix B

Listing by Site/Pest and Site/Formulation with Product Number (continued)

/28006AA **Corn, Field**
Pests (see list above)
(4 lb/gal EC)
001471-00035   001471-00116

(5 lb/gal EC)
001471-00120

/10010AA **Cucumber**
Pests (see list above)
(1.47% G)
001159-00202   002217-00480   009198-00060

(5% G)
001471-00059   009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   034704-00241
034704-00242   044215-00073   044215-00106

(5 lb/gal EC)
001471-00120

/28009AA **Flax**
Pests (see list above)
(5% G)
001471-00059   001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001471-00035

/01014AA **Grapes**
Pests (see list above)
(5% G)
001471-00059

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Grapes (continued)

(5 lb/gal EC)
001471-00120

/02002AA **Grapefruit**
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/26011AA **Guar**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/08020AA **Hops**
Pests (see list above)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/13011AA **Kale**
Pests (see list above)
(0.2% G)
006735-00228

Listing by Site/Pest and Site/Formulation/Registration Number continued.

Kale (continued)

(0.25% G)
006735-00236

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/02004AA **Lemon**
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28012AA **Mint (peppermint, spearmint)**
Pests (see list above)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/15012AA **Mungbean**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

Mungbean (continued)

(5 lb/gal EC)
001471-00120

/13021BA **Mustard (seed crop)**
Pests (see list above)
(5% G)
001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/13021AA **Mustard**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(5% G)
001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/05003AA **Nectarine**
Pests (see list above)
(10% G)
001471-00143

Nectarine (continued)

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/15015AA Okra
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/14011AA Onion, Dry
Pests (see list above)
(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/02006AA **Orange**
Pests (see list above)
(5% G)
001471-00139

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/05004AA **Peach**
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/28016AA **Peas**
Pests (see list above)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/28074AA **Peas, Dry**
Pests (see list above)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

Listing by Site/Pest and Site/Formulation [illegible]ation Number (continued)

15009AA **Peas, English**

Pests (see list above)

(4 lb/gal EC)

001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)

001471-00120

/15008AA **Peas, Field**

Pests (see list above)

(0.2% G)

006735-00228

(0.25% G)

006735-00236

(0.93% G)

001598-00215

(1.47% G)

000961-00260 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)

000961-00335

(5% G)

000226-00252 001471-00059 009499-00004

(10% G)

001471-00143

(4 lb/gal EC)

001471-00035 001471-00116 002749-00219 006735-00215
034704-00241 034704-00242 044215-[illegible] 044215-00106

(5 lb/gal EC)

001471-00120

/28015AA **Peanuts**

Pests (see list above)

(10% WP)

001471-00136

(Spanish)

(0.2% G)

006735-00228

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Peanuts (continued)

(0.25% G)
006735-00236

(5% G)
001471-00059

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(Florunner, Florigiant)
(4 lb/gal EC)
001471-00035

/03008AA **Pecan**
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28017AA **Peppers**
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.93% G)
001598-00215

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Peppers (continued)

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00252 001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/05005AA **Plum**
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/14013AA **Potato**
Pests (see list above)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(Irish)
(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

/05006AA **Prune**

Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/28051AA **Rape**

Pests (see list above)
(5% G)
001471-00059 001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/28076AA **Safflower**

Pests (see list above)
(5% G)
001471-00059 001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28019AA **Sorghum**

Pests (see list above)
(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/24006AA Sorghum, Milo
Pests (see list above)
(4 lb/gal EC)
001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/28023AA Soybeans
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(0.35% G)
006735-00233

(0.5% G)
006735-00234

(5% G)
001471-00059 001471-00125

(10% G)
001471-00143

(1.5 lb/gal EC)
001471-00137

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28020AA Sugar Beets
Pests (see list above)
(5% G)
001471-00059

(10% G)
001471-00143

Sugar Beets (continued)

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

25003AA Sugarcane
Pests (see list above)
(plant cane)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(ratoon cane)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(plant cane and ratoon cane)
(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/28021AA Sunflower
Pests (see list above)
(5% G)
000226-00252 001471-00059 001471-00125

(10% G)
001471-00143

Listing by Site/Pest and Site/Formulation [illegible]ation Number (continued)

Sunflower (continued)

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/02007AA   Tangelo
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/02008AA   Tangerine
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609   001471-00035   001471-00116   002749-00219
006735-00215   034704-00241   034704-00242   044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/11005AA   Tomato
Pests (see list above)
(direct seeded)
(0.93% G)
001598-00215

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009198-00060   043640-00001

(5% G)
000226-00252   001471-00059

Tomato (continued)

(10% G)
001471-001[illegible]3

(3.1% WP)
001471-00135

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

(transplant)
(0.2% G)
006735-0022[illegible]

(0.25% G)
006735-00236

(0.93% G)
001596-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000961-00335

(5% G)
000226-00251 001471-00059 009499-00004

(10% G)
001471-[illegible]

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/13026AA Turnip
Pests (see list above)
(0.2% G)
006735-00228

(0.25% G)
006735-00236

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 002749-00219
006735-00215 034704-00241 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

/03009AA Walnut
Pests (see list above)
(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00241
034704-00242 044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

/10008AA Watermelon
Pests (see list above)
(5% G)
001471-00059 009499-00004

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116

(5 lb/gal EC)
001471-00120

/24007AA Wheat
Pests (see list above)
(winter)
(5% G)
001471-00125

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Wheat (continued)

(10% G)
001471-00143

(4 lb/gal EC)
001386-00609 001471-00035 001471-00116 034704-00242
044215-00073 044215-00106

(5 lb/gal EC)
001471-00120

(spring, durum)
(5% G)
001471-00059 001471-00125

(10% G)
001471-00143

(4 lb/gal EC)
001471-00035 001471-00116 034704-00242 044215-00073
044215-00106

(5 lb/gal EC)
001471-00120

TERRESTRIAL NON-FOOD CROP

(Ornamental Plants and Forest Trees)

/31010AA **Achillea**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-[illegible] 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

Listing by Site/Pest and Site/Formulation/Registration Number (continued

/31500AA Adriatic Bellflower
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31303AA African Trailing Daisy
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31423AA Agapanthus
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31013AA Ageratum
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00067

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Ageratum (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/33036AA Algerian Ivy (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35094AA Apple
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31023AA Arctotis
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009196-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31026AA Aster
Pests (see list above)
(0.095% G)
005867-00062

(0.37% G)
000239-02262

Aster (continued)

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/35024AA **Austrian Pine**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34500AA **Azalea Hybrids/Cultivars**
Pests (see list above)
(0.095% G)
005887-00062

(0.74% G)
000239-02263 000961-00283

(0.92% G)
000572-00260

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/35025AA Baldcypress
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35026AA Balsam Fir
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34025AA Barberry
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/33086AA Big Blue Lilyturf (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35030AA Black Locust
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35031AA Black Walnut
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

35032AA **Blackgum**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31502AA **Blue Ceratostigma**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35033AA **Blue Spruce**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34031AA **Boxwood**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31050AA **Calendula**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

Calendula (continued)

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31051AA **California Poppy**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000172-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 [illegible] 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 [illegible] 007001-00193

(1.75% PrD)
004822-00123

/34035AA **California Privet**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

California Privet (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31057AA Carnation
Pests (see list above)
(0.095% G)
005887-00062

(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/35364AA Carolina Cherry-Laurel
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

Listing by Site/Pest and Site/Formulatio[illegible]stration Number (continued)

/31159AA **Centaurea**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/34243AA **Cherryberry Cotoneaster**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35235AA **Chinese Chestnut**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35155AA **Chinese Juniper**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31405AA **Christmas Cheer**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

Listing by Site/Pest and Site/Formulation and Registration Number (continued)

/31065AA **Chrysanthemum**
Pests (see list above)
(0.095% G)
005887-00062

(0.93% G)
001596-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31067AA **Cinquefoil**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34043AA **Common Camellia**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34405AA **Common [illegible]**
Pests (see list above)
(5% G)
[illegible] 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31498AA **Common Thrift**
Pests (see list above)
(5% G)
001471-00066

Listing by Site/Pest and Site/Formulation/Registration Number (continued

Common Thrift (continued)

(4 lb/gal EC)
001471-00065

/31076AA **Coreopsis**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31077AA **Cosmos**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

Listing by Site/Pest and Site/Formulation/Registration Number (continue

Cosmos (continued)

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009196-00060   043640-00001

(1.75% G)
000769-00377   000961-00335   006720-00066

(5% G)
000961-00405   001471-00066   009499-00004   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

34045AA   Cotoneaster
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35133AA   Cottonwood
Pests (see list above)
(5% G)
000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/34244AA   Cranberry Cotoneaster
Pests (see list above)
(5% G)
000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/34563AA   Creeping Wireplant
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31437AA **Crown Vetch** (Ornamental)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31083AA **Daffodil**
Pests (see list above)
(1.75% G)
000769-00377 000961-00335 006720-00066

/31084AA **Dahlias**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00260 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/34050AA **Deutzia**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

Deutzia (continued)

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/31087AA Dianthus
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280   002217-00480   007401-00349   009198-00060
043640-00001

(5% G)
000961-00405   001471-00066   009499-00004   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

/31091AA Dimorphotheca
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009198-00060   043640-00001

(5% G)
000961-00405   001471-00066   009499-00004   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

/35043AA Dogwood
Pests (see list above)
(0.74% G)
000239-02263

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TRIFLURALIN

Appendix B

Listing by Site/Pest and Site/Formulation [illegible]ration Number (continued)

/35044AA **Douglas-Fir**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/33130AA **Dwarf Coyotebrush** (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35045AA **Eastern Hemlock**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/33030AA **English Ivy**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34450AA **Erect Euonymus**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34991AA **Euonymus Newport**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

Listing by Site/Pest and Site/Formulation/[illegible]ation Number (continued

/35171AA **European White Birch**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34058AA **Firethorn**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35057AA **Flowering Dogwood**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31101AA **Forget-Me-Not**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

Forget-Me-Not (continued)

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

/31102AA **Four O'Clock**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226   000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009198-00060   043640-00001

(1.75% G)
000769-00377   000961-00335   006720-00066

(5% G)
000961-00405   001471-00066   009499-00004   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

/31105AA **Gaillardia**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226   000572-00260

(0.93% G)
001598-00215

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Gaillardia (continued)

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31106AA Garden Balsam
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Garden Balsam (continued)

(1.75% PrD)
004822-00123

/33128AA Gazania
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31993AA Gazania sangelo
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31289AA Germander
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31111AA Gladiolus
Pests (see list above)
(0.17% G)
006993-00029 042057-00078

(0.174% G)
000239-02292

(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

Glaciolus (continued)

(1.75% G)
000769-00377   000961-00335   006720-00066

(5% G)
000961-00405   001471-00066   009499-00004   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

/34181AA   Golden Bell
Pests (see list above)
(5% G)
000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/33139AA   Goldmoss Sedum
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34246AA   Harlands Boxwood
Pests (see list above)
(5% G)
000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/34304AA   Hetzi Holly
Pests (see list above)
(5% G)
000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/34372AA **Hirvu Azalea**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31121AA **Hollyhock**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
009499-00004

(1.75% PrD)
004822-00123

/35070AA **Honeylocust**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34072AA **Honeysuckle**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

Listing by Site/Pest and Site/Formulation [illegible] [illegible]ation Numb[illegible] (continued)

Honeysuckle (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/33138AA Hypericum coris
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/33124AA Iceplant (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34075AA India Hawthorn
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34185AA Indica Azalea
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35181AA Intermediate Yew
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34077AA Ixora
Pests (see list above)
(0.93% G)
001598-00215

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Ixora (continued)

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/34078AA Japanese Andromeda
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34079AA Japanese Barberry
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35185AA Japanese Black Pine
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35244AA Japanese Dogwood
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Littleleaf Boxwood (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31133AA **Lobelia**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/35076AA **Loblolly Pine**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35192AA **London Plane**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

London Plane (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31135AA **Lupines**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31137AA **Marigold**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

Marigold (continued)

(1.75% PrD)
004822-00123

/33038AA Mascarenegrass
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34094AA Mock-Orange
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31140AA Morning-Glory
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

Li[illegible]ng by Site/Pest and Site/Formulatio[illegible]stration Number (continued

Morning-Glory (continued)

(1.75% PrD)
004822-00123

/3[illegible]97AA **Mountain-Laurel**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35289AA **Myoporum**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35290AA **Myoporum laetum**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31143AA **Nasturtium**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.53% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

Nasturtium (continued)

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/34541AA **Needlepoint Ivy**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31286AA **Nicotiana**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 002217-00480 007401-00349 009198-00060
043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/35092AA **Northern White-Cedar**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35089AA **Norway Maple**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

Listing by Site/Pest and Site/Formulation/Registration Number (conti

Norway Maple (continued)

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/35090AA   Norway Spruce
Pests (see list above)
(5% G)
000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

/35000AA   Ornamental and/or Shade Trees
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226   000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009198-00060   043640-00001

(1.75% G)
000769-00377   000961-00335   006720-00066

(2.65% G)
000538-00102

(5% G)
001159-00201   009499-00004

(1.75% PrD)
004822-00123

/31005AA   Ornamental Bulb Plants
Pests (see list above)
(0.17% G)
006993-00029

3[illegible]7AA **Ornamental Deciduous Shrubs**
Pests (see list above)
(0.68% G)
000538-00083

/35006AA **Ornamental Deciduous Trees**
Pests (see list above)
(0.68% G)
000538-00083

/32005AA **Ornamental Evergreens**
Pests (see list above)
(0.095% G)
005887-00062

(0.68% G)
000538-00083

(0.74% G)
000239-02263 000961-00283

(0.92% G)
000572-00226 000572-00260

(1.15% G)
000572-00200

/31003AA **Ornamental Flowering Plants**
Pests (see list above)
(0.17% G)
006993-00029 042057-00078

(0.174% G)
000239-02292

(1.15% G)
002491-00291

(2.65% G)
000538-00102

(5% G)
001159-00201

/33009AA **Ornamental Ground Covers**
Pests (see list above)
(0.68% G)
000538-00083

/[illegible]AA **Ornamental Woody Shrubs**
Pests (see list above)
(0.17% G)
006993-00029 042057-00078

(0.174% G)
000239-02292

(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200 002491-00291

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(2.65% G)
000538-00102

(5% G)
001159-00201 009499-00004

(1.75% PrD)
004822-00123

/33134AA **Osteospermum** (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34109AA **Periwinkle**
Pests (see list above)
(0.37% G)
000239-02262

Periwinkle (continued)

(0.92% G)
000572-00226   000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280   001159-00202   002217-00480   007401-00349
009198-00060   043640-00001

(1.75% G)
000769-00377   000961-00335   006720-00066

(5% G)
000961-00405   001471-00066   009499-00004   042057-00087

(4 lb/gal EC)
001471-00065   005481-00172   007001-00193

(1.75% PrD)
004822-00123

/33094AA   Peruvian Verbena (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31154AA   **Petunias**
Pests (see list above)
(0.095% G)
005887-00062

(0.37% G)
000239-02262

(0.92% G)
000572-00226   000572-00260

(0.93% G)
001598-00215

Listing by Site/Pest and Site/Formulation/Registration Number (continued.

Petunias (continued)

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31156AA **Phlox**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/35255AA **Pin Oak**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34112AA **Pineapple Guava**
  Pests (see list above)
(5% G)
  000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
  001471-00065   005481-00172   007001-00193

/33137AA **Point Reyes Ceanothus**
  Pests (see list above)
(5% G)
  001471-00066

(4 lb/gal EC)
  001471-00065

/35102AA **Prunus**
  Pests (see list above)
(5% G)
  000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
  001471-00065   005481-00172   007001-00193

/35204AA **Red Maple**
  Pests (see list above)
(5% G)
  000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
  001471-00065   005481-00172   007001-00193

/35105AA **Red Oak**
  Pests (see list above)
(5% G)
  000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
  001471-00065   005481-00172   007001-00193

/35106AA **Red Pine**
  Pests (see list above)
(5% G)
  000961-00405   001471-00066   042057-00087

(4 lb/gal EC)
  001471-00065   005481-00172   007001-00193

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/35103AA **Redbud**
  Pests (see list above)
  (5% G)
    000961-00405 001471-00066 042057-00087

  (4 lb/gal EC)
    001471-00065 005481-00172 007001-00193

/35104AA **Redcedar**
  Pests (see list above)
  (5% G)
    000961-00405 001471-00066 042057-00087

  (4 lb/gal EC)
    001471-00065 005481-00172 007001-00193

/34118AA **Rhododendron Hybrids/Cultivars**
  Pests (see list above)
  (0.095% G)
    005887-00062

  (0.74% G)
    000239-02263

  (0.92% G)
    000572-00260

/31302AA **Rockrose**
  Pests (see list above)
  (5% G)
    001471-00066

  (4 lb/gal EC)
    001471-00065

/34120AA **Rose**
  Pests (see list above)
  (0.095% G)
    005887-00062

  (0.17% G)
    006993-00029 042057-00078

  (0.174% G)
    000239-02292

  (0.37% G)
    000239-02262

Rose (continued)

(0.92% G)
000572-00226

(0.93% G)
001596-00215

(1.15% G)
000572-00200 002491-00291

(1.47% G)
001159-00202 002217-00480

(5% G)
000961-00405 001159-00201 001471-00066 009499-00004
042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31167AA **Rose Moss**
Pests (see list above)
(0.93% G)
001596-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/33120AA **Rosemary** (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31169AA **Rudbeckia**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31503AA **Rupturewort**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34208AA **Sakaki**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31171AA **Salvia**
Pests (see list above)
(0.93% G)
001598-00215

Listing by Site/Pest and Site/Formulation/Registration Number (continued

Salvia (continued)

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/34122AA **Sandankwa Viburnum**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34124AA **Sasanqua Camellia**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31173AA **Scabiosa**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/35206AA **Scarlet Oak**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35113AA **Scotch Pine**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/33125AA **Sedum**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/33140AA **Sedum confusum**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31994AA **Sedum musaneuse**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31[illegible]AA **Serbian Bellflower**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

Listing by Site/Pest and Site/Formulation/[illegible] Number (continued)

[illegible] **Shasta Daisy**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/35209AA **Shore Juniper**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34209AA **Shrub-Althea**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

Listing by Site/Pest and Site/Formulation/Registration Number (continued

/35211AA **Silver Maple**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00067

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/3118-AA **Snapdragon**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31268AA **Snow-In-Summer**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31185AA **Snow-On-The-Mountain**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31419AA **Sprenger Asparagus**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/33126AA **St. John's-Wort** (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31188AA **Stocks**
Pests (see list above)
(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

Stocks (continued)

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/33106AA Strawberry (Ornamental) (ground cover)
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/35117AA Sugar Maple
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31194AA Sunflower
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

/670130A Firebreaks
  Pests (see list above)
(4% G)
  001471-00139

/670040A Highway Rights-of-Way
  Pests (see list above)
(4% G)
  001471-00139

/670090A Industrial Sites
  Pests (see list above)
(4% G)
  001471-00139

/670110A Paved Surfaces
  Pests (see list above)
(4% G)
  001471-00139

(4 lb/gal EC)
  001471-00065

/670050A Railroad Rights-of-Way
  Pests (see list above)
(4% G)
  001471-00139

/670060A Utility Rights-of Way
  Pests (see list above)
(4% G)
  001471-00139

AQUATIC NON-FOOD

(Aquatic Sites)

/650130A Ditchbanks
  Pests (see list above)
(4% G)
  001471-00139

Sunflower (continued)

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31196AA **Sweet Alyssum**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/31197AA **Sweet Pea**
Pests (see list above)
(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

Listing by Site/Pest and Site/Formulation Registration Number (continued)

Sweet Pea (continued)

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

/34133AA **Sweet Viburnum**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31198AA **Sweet William**
Pests (see list above)
(0.93% G)
001598-00215

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

EPA Index to Pesticide Chemicals

TRIFLURALIN

Appendix B

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

/35118AA Sweetgum
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35119AA Sycamore
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34218AA Thorny Elaeagnus
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31455AA Treasure Flower
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31025AA Tulips
Pests (see list above)
(1.75% G)
000769-00377 000961-00335 [illegible]-00066

/35120AA Tuliptree
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34223AA Vanhoutte Spirea
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

Vanhoutte Spirea (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31206AA Verbena
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/31207AA Veronica
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34258AA Viburnum Doublefile
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34224AA Weigela Bristol Ruby
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35227AA White Ash
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35126AA White Pine
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

Listing by Site/Pest and Site/Formulation/Registration Number (continued)

White Pine (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35127AA **White Spruce**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35128AA **Willow**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/34232AA **Winged Euonymus**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31499AA **Woolly Yarrow**
Pests (see list above)
(5% G)
001471-00066

(4 lb/gal EC)
001471-00065

/34074AA **Wright Viburnum**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/35253AA **Yew Podocarpus**
Pests (see list above)
(5% G)
000961-00405 001471-00066 042057-00087

Listing by Site/Pest and Site/Formulation/Registration Number (continue

Yew Podocarpus (continued)

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

/31213AA **Zinnia**
Pests (see list above)
(0.095% G)
005887-00062

(0.37% G)
000239-02262

(0.92% G)
000572-00226 000572-00260

(0.93% G)
001598-00215

(1.15% G)
000572-00200

(1.47% G)
000961-00280 001159-00202 002217-00480 007401-00349
009198-00060 043640-00001

(1.75% G)
000769-00377 000961-00335 006720-00066

(5% G)
000961-00405 001471-00066 009499-00004 042057-00087

(4 lb/gal EC)
001471-00065 005481-00172 007001-00193

(1.75% PrD)
004822-00123

(Noncrop, Wide Area, And General Outdoor Treatments)

/670010A **Airport Runways**
Pests (see list above)
(4% G)
001471-00139

/670150A **Fencerows (Non-agricultural)**
Pests (see list above)
(4% G)
001471-00139

APPENDIX IV

BIBLIOGRAPHY APPENDICES

GUIDE TO USE OF THIS BIBLIOGRAPHY

1. CONTENT OF BIBLIOGRAPHY. This bibliography contains citations of all studies considered relevant by EPA in arriving at the positions and conclusions stated elsewhere in the Standard. Primary sources for studies in this bibliography have been the body of data submitted to EPA and its predecessor agencies in support of past regulatory decisions. Selections from other sources including the published literature, in those instances where they have been considered, will be included.*

2. UNITS OF ENTRY. The unit of entry in this bibliography is called a "study." In the case of published materials, this corresponds closely to an article. In the case of unpublished materials submitted to the Agency, the Agency has sought to identify documents at a level parallel to the published article from within the typically larger volumes in which they were submitted. The resulting "studies" generally have a distinct title (or at least a single subject), can stand alone for purposes of review, and can be described with a conventional bibliographic citation. The Agency has attempted also to unite basic documents and commentaries upon them, treating them as a single study.

3. IDENTIFICATION OF ENTRIES. The entries in this bibliography are sorted numerically by "Master Record Identifier," or MRID, number. This number is unique to the citation, and should be used at any time specific reference is required. It is not related to the six-digit "Accession Number" which has been used to identify volumes of submitted studies; see paragraph 4(d)(4) below for a further explanation. In a few cases, entries added to the bibliography late in the review may be preceded by a nine-character temporary identifier. These entries are listed after all MRID entries. This temporary identifier number is also to be used whenever specific reference is needed.

4. FORM OF ENTRY. In addition to the Master Record Identifier (MRID), each entry consists of a citation containing standard elements followed, in the case of material submitted to EPA, by a description of the earliest known submission. Bibliographic conventions used reflect the standards of the American National Standards Institute (ANSI), expanded to provide for certain special needs.

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*A largely complete set of toxicity studies were submitted to the Agenc at a time that was too late for full reviews to have been completed and subsequently included in the Standard. A partial list of these data are included in an addendum to this Bibliography. They may be cited to support registration of products containing trifluralin, subject to possible questions about their validity.

a. Author. Whenever the Agency could confidently identify one, the Agency has chosen to show a personal author. When no individual was identified, the Agency has shown an identifiable laboratory or testing facility as author. As a last resort, the Agency has shown the first submitter as author.

b. Document Date. When the date appears as four digits with no question marks, the Agency took it directly from the document. When a four-digit date is followed by a question mark, the bibliographer deduced the date from evidence in the document. When the date appears as (19??), the Agency was unable to determine or estimate the date of the document.

c. Title. In some cases, it has been necessary for Agency bibliographers to create or enhance a document title. Any such editorial insertions are contained between square brackets.

d. Trailing Parentheses. For studies submitted to the Agency in the past, the trailing parentheses include (in addition to any self-explanatory text) the following elements describing the earliest known submission:

    (1) Submission Date. The date of the earliest known submission appears immediately following the word "received."

    (2) Administrative Number. The next element, immediately following the word "under," is the registration number, experimental use permit number, petition number, or other administrative number associated with the earliest known submission.

    (3) Submitter. The third element is the submitter, following the phrase "submitted by." When authorship is defaulted to the submitter, this element is omitted.

    (4) Volume Identification (Accession Numbers). The final element in the trailing parentheses identifies the EPA accession number of the volume in which the original submission of the study appears. The six-digit accession number follows the symbol "CDL," standing for "Company Data Library." This accession number is in turn followed by an alphabetic suffix which shows the relative position of the study within the volume. For example, within accession number 123456, the first study would be 123456-A; the second, 123456-B; the 26th, 123456-Z; and the 27th, 123456-AA.

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Citations Considered to be Part of the Data Base Supporting Registrations Under the Trifluralin Standard

MRID	CITATION
00022257	Eli Lilly and Company (1967) Supplemental Residue Data: Trifluralin--Irish Potatoes. (Unpublished study received Mar 12, 1968 under 1471-35; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis Ind.; CDL:006227-B)
00022376	Shaw, A.; Thaemert, E.; Binning, L.K.; et al. (1975) Eptam 7-E + Treflan 4-E Tank Mix on Beans. (Unpublished study received Jul 20, 1976 under 476-2154; prepared in cooperation with Morse Laboratories, Inc. and Univ. of Wisconsin, submitted by Stauffer Chemical Co., Richmond, Calif.; CDL:224906-A)
00022793	Sckerl, M. (1978) [Residue Data Treflan and Planavin Herbicides in Soybeans]: TIR-24-305-76-C. (Unpublished study including TIR-24-143-72-B, received Jul 18 1979 under 201-279; prepared in cooperation with Agri-Research, submitted by Shell Chemical Co., Washington, D.C.; CDL:098395-O)
00023105	Fisher, D.E.; St. John, L.E., Jr.; Guntenman, W.E.; et al. (1965) Fate of Banvel T, Ioxynil, Tordon and Trifluralin in the dairy cow. Journal of Dairy Science 48(12):1711-1715. (Also in unpublished submission received Apr 8, 1976 under 876-203; submitted by Velsicol Chemical Corp., Chicago, Ill.; CDL:235226-Y)
00024248	Eli Lilly and Company (1964) Determination of Trifluralin Residues in Agronomic Crops When the Pesticide BHC, Ethion and/or Zineb Are Present in the Crop Sample. Method 5801110 dated Oct 15, 1964. (Unpublished study received Feb 16, 1966 under 1471-55; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:092800-B)
00024731	Penner, D. (1971) Effect of temperature on phytotoxicity and root uptake of several herbicides. Weed Science 19(5):571-575. (Also in unpublished submission received Jul 19, 1978 under 201-403; submitted by Shell Chemical Co., Washington, D.C.; CDL:234470-AI)
00026049	Merkle, M.G.; Spears, B.R. (1969) Crop Residue Report: [Vernam 6E Treflan 4E]: FSDS No. B-0458. (Unpublished study including FSDS nos. B-0457, B-0456, B-0455..., received Dec 8, 1969 under 476-1807; prepared in cooperation with Texas A & M Univ., submitted by Stauffer Chemical Co., Richmond, Calif.; CDL:003788-B)

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00026054	Golab, T.; Herberg, R.J.; Parka, S.J.; et al. (1967) Metabolism of Carbon-14 Trifluralin in carrots. Journal of Agricultural and Food Chemistry 15(4):638-641. (Also in unpublished submission received Jan 3, 1971 under 0F0981; submitted by Shell Chemical Co., Washington, D.C.; CDL:091687-C)
00028772	Atkins, E.L.; Greywood, E.A.; Macdonald, R.L. (1973) Toxicity of Pesticides and Other Agricultural Chemicals to Honey Bees: Laboratory Studies. Rev. By Univ. of California—Riverside, Dept. of Entomology. Riverside, Calif.: UC, Agricultural Extension Service. (Also in unpublished submission received Apr 2, 1980 under 464-556; submitted by Dow Chemical U.S.A., Midland, Mich.; CDL:242149-Z)
00030932	Baychem Corporation (1973) Treflan plus Sencor—Soybeans. (Unpublished study received Feb 15, 1973 under 1471-EX-40; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:210010-B)
00032811	Elanco Products Company (1978) Trifluralin—Corn. (Unpublished study received Jun 23, 1980 under CO 80/9; CDL:242716-B)
00033086	Manning, P.B.; Kerr, T.W.; Olney, C.E.; et al. (1964) [Residue Study]. (Unpublished study including published data, received Jan 14, 1965 under 100-471; prepared by Univ. of Rhode Island, Agricultural Experiment Station and others, submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL:000459-E)
00033087	Manning, P.B.; Kerr, T.W.; Olney, C.E.; et al. (1964) [Residue Study]. (Unpublished study including published data, received Jan 14, 1965 under 100-471; prepared in cooperation with Univ. of Rhode Island, Agricultural Experiment Station and Gaspro, Ltd., submitted by Ciba-Geigy Corp., Greensboro, N.C.; CDL: 000459-F)
00036607	Emmerson, J.L.; Arthur, B.H.; Ansley, A.D.; et al. (1979) Acute Hazard Evaluation of Treflan"(R)† 4EC, Lot X-27572 Including Oral, Dermal, Ocular and Inhalation Studies. (Unpublished study received Jul 10, 1980 under 1471-116; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL: 242796-A)

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00044337	Emmerson, J.L.; Pierce, E.C.; McGrath, J.P.; et al. (1980) The Chronic Toxicity of Compound 36352 (Trifluralin) Given as a Component of the Diet to Fischer 344 Rats for Two Years: Studies R-87 and R-97. (Unpublished study received Sep 18, 1980 under 1471-35; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:243289-A, 243290)
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00047591	Elanco Products Company (1967?) Determination of Trifluralin, Diphenamid and N-Methyl-2,2-diphenylacetamide in Tomatoes. Undated method no. 5800600. (Unpublished study received Aug 22, 1968 under 8F0717; CDL:093027-B)
00047639	Armock, I.; Knight, C.W.; Leavitt, R.A.; et al. (1979) Summary: [Efficacy of Trifluralin for Weed Control in Rape]. (Unpublished study including PR no. 1124, received Jul 29, 1980 under 0E2394; prepared in cooperation with Michigan State Univ., Pesticide Research Center and others, submitted by Interregional Research Project No. 4, New Brunswick, N.J.; CDL: 099525-A)
00057545	Stauffer Chemical Company (1981) Eptam 7-E + Treflan 4-EC Tank Mix Applied Preplant Incorporated to Sunflowers. (Compilation; unpublished study received Feb 13, 1981 under 476-2154; CDL: 244420-A)
00057546	Stauffer Chemical Company (1981) Eptam 7-E + Treflan 4-EC Tank Mix Applied Postemergence Incorporated in Sugarbeets. (Compilation; unpublished study received Feb 13, 1981 under 476-2154; CDL: 244420-B)
00057547	Stauffer Chemical Company (1979) Eptam 7-E + Treflan 4-EC Tank Mix Applied Preplant Incorporated to Snap Beans. (Compilation; unpublished study received Feb 13, 1981 under 476-2154; CDL: 244420-C)
00059531	Eli Lilly and Company (1975) Peanuts-Treflan plus Vernolate. (Compilation; unpublished study received Mar 13, 1975 under 1471-EX-47; CDL:224660-B)

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00062921	Emmerson, J.L.; Gomez, S.R.; Dorato, M.A.; et al. (1980) The Acute Inhalation Toxicity of Treflan M.T.F., a Formulation of Trifluralin, in the Fischer 344 Rat: Study R-H-95-80. (Unpublished study received Dec 11, 1980 under 1471-116; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:243937-A)
00067222	Frank, R.; Johnson, W.S.; Sieck, R.F.; et al. (1978) Residue Data on Trifluralin and Vernolate in Peanuts When Preplant Incorporated as an EC Formulation. Includes procedure no. 5801616 dated May 24, 1977 and undated procedure no. 5801690. (Unpublished study received Jul 25, 1980 under 1471-35; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:243059-A)
00067371	Danhaus, R.G.; Mestdagh, P.; Schreurs, R.; et al. (1980) Residues of Triallate, Trifluralin and EPTC in Oilseeds following Preemergent Applications of Far-go (R), Far-go (R)† + Treflan (R), and Far-go (R) + Eptam (R) Tank Mixes: Report No. MSL-1323. Final rept. Includes undated methods entitled: Analytical residue method for triallate and trifluralin in oilseed crops and Analytical residue method for EPTC in flax seed. (Unpublished study, including published data, received Dec 23, 1980 under 524-145; submitted by Monsanto Co., Washington, D.C.; CDL: 099852-A)
00067430	Harrison, S.L.; Nygren, R.E.; Boros, E.J.; et al. (1980) Chloramben and Trifluralin Analyses of Sunflowers Treated with Amiben (R) + Treflan Tank Mix PPI: Project No. 10123/279D. (Unpublished study received Dec 19, 1980 under 264-138; prepared in cooperation with Biospherics, Inc. and Allied Chemical Services, Ltd., Canada, submitted by Union Carbide Agricultural Products Co., Inc., Ambler, Pa.; CDL:243984-B)

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MRID	CITATION
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00067435	Decker, O.D.; Griggs, R.D. (1980) Determination of Trifluralin in Agricultural Crops and Soil. Undated method AM-AA-CA-R023-AA-755. (Unpublished study received Dec 19, 1980 under 264-138; prepared by Eli Lilly and Co., submitted by Union Carbide Agricultural Products Co., Inc., Ambler, Pa.; CDL:243984-I)
00070736	Frank, R.; Sieck, R.F.; Shuey, E.W. (1978) Trifluralin and Triallate on Barley and Wheat: Residue Data. (Unpublished study received Feb 20, 1981 under 1471-35; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL: 244413-A)
00080320	Fisher, D.E.; St. John, L.E., Jr.; Gutenmann, W.H.; et al. (1965?) Fate of Banvel T, Ioxynil, Tordon, and Trifluralin in the Dairy Cow. (Unpublished study received Feb 7, 1967 under unknown admin. no.; prepared by Cornell Univ., Depts. of Engineering Physics, Entomology and Animal Husbandry, submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:105544-D)
00080322	Nellor, J.E. (19??) Influence of Orally Administered Trifluralin on the Performance and Well Being of Lactating Goats. (Unpublished study received Feb 7, 1967 under unknown admin. no.; prepared by Michigan State Univ., Dept. of Animal Husbandry, submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:105544-F)
00083645	Harris, P.N. (1966) Dog Studies. (Unpublished study received Nov 13, 1966 under 7F0555; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:090691-A)

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MRID CITATION

00083650 Emmerson, J.L.; Harris, P.N. (1964) Subacute Studies. (Unpublished study received Nov 13, 1966 under 7F0555; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:090691-G)

00084581 Decker, O.D.; Sieck, R.F.; Shuey, E.W. (1981) Trifluralin in Flaxseed When Used as Pre-plant Soil Incorporated Application for Weed Control: Residue Data. (Unpublished study received Sep 24, 1981 under 1471-35; prepared in cooperation with North Dakota State Univ., submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:070366-A)

00085087 Emmerson, J.L.; Ansley, A.D.; Quarles, J.A.P.; et al. (1981) The Acute Inhalation Toxicity Testing of Treflan 5EC, an Emulsifiable Concentrate Formulation (AT-5071) Containing Trifluralin (36352), in the Fischer 344 Rat: Study No. R-H-56-81. (Unpublished study received Sep 24, 1981 under 1471-120; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:246039-E)

00093190 Shell Chemical Company (1974) 1973--Residue Data for Treflan in Cottonseed from Stoneville, Mississippi: TIR-24-195-73 (Part II). (Unpublished study received Feb 28, 1975 under 5F1599; CDL:094364-O)

00093549 Manning, P.B.; Kerr, T.W.; Olney, C.E.; et al. (1964) Residue analysis of various fruits and vegetables treated with DCPA, prometryne and trifluralin for weed control. Pages 105-108, In Proceedings of the Northeastern Weed Control Conference: Volume 18; Jan 8,9,10, 1964, New York, N.Y. N.P. (Also in unpublished submission received Dec 1, 1964 under 7F0559; submitted by Geigy Chemical Co., Ardsley, N.Y.; CDL:090702-E)

00093553 Elanco Products Company (1966?) Radioactive Metabolic Studies. (Unpublished study received Jan 4, 1967 under 7F0555; CDL: 090690-B)

00093554 Elanco Products Company (1966) Summary of Residue Data. (Compilation; unpublished study received Jan 4, 1967 under 7F0555; CDL:090690-C; 090689)

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00093574	Elanco Products Company (1966) [Residue of Trifluralin--Irish Potatoes]. (Compilation; unpublished study received Jan 24, 1967 under 7F0586; CDL:090752-A)
00093634	Van Duyn, R.L.; Berkman, R.N. (1965) Trifluralin Residues from a Dairy Cow: VPR-235-418. (Unpublished study received Jan 25, 1967 under 7F0565; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:090711-B)
00093636	Raun, A.P.; Herberg, R.J. (1966) Study of C14-Treflan Excretion in the Lactating Goat. (Unpublished study received Jan 25, 1967 under 7F0565; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:090711-E)
00093637	Elanco Products Company (1966) Trifluralin--Alfalfa: Summary. (Compilation; unpublished study, including experiment nos. AAD-1309, AAD-1664, AAD-1664A..., received Jan 25, 1967 under 7F0565; CDL:090711-I)
00094410	Union Carbide Agricultural Products Company, Incorporated (1975) [Residue Studies on Chloramben, Trifluralin and Linuron in Soybeans]. (Compilation; unpublished study received May 23, 1975 under 264-266; CDL:195120-A)
00096361	Decker, O.D.; Sieck, R.F.; Shuey, E.W. (1981) Residue Data on Trifluralin and Oryzalin When EL-5219 is Used for Preemergence Weed Control in Soybeans. (Unpublished study received Feb 10, 1981 under 1471-118; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, Ind.; CDL:244283-A)
00104423	Frank, R.; Amundson, M.; Deal, P.; et al. (1978) Trifluralin and Chloramben on Soybeans: Residue Data. (Unpublished study received Feb 9, 1978 under 1471-35; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, IN; CDL:232828-A)

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MRID	CITATION
00105646	Elanco Products Co. (1965) [Trifluralin Residue Data--Peanuts]. (Compilation; unpublished study received Mar 23, 1965 under 1471-35; CDL:005968-B)
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00105650	Little, C.; Hunt, H. (1968) Supplemental Trifluralin Residue Data on Cole Crops Harvested in 1967 and 1968. (Unpublished study received Feb 10, 1969 under 1471-35; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, IN; CDL: 006241-B)
00105655	Mobay Chemical Corp. (1973) Residue Data on Treflan: Preplant Soil Incorporated Followed by Sencor Surface Applied for Preemergence Weed Control in Soybeans. (Compilation; unpublished study received Mar 1, 1973 under 3125-277; CDL:007214-B)
00105666	Elanco Products Co. (1966) The Results of Tests on the Amount of Residue Remaining, Including a Description of the Analytical Method Used: [Trifluralin]. (Compilation; unpublished study received on unknown date under 6F0493; CDL:090567-A)
00105667	Elanco Products Co. (1966) Residue Data on Trifluralin in Citrus, Stone Fruit, Nuts, Vine Crops, and Pome Fruit. (Compilation; unpublished study received on unknown date under 7G0533; CDL: 090649-A)
00105668	Eli Lilly and Co. (1967) Residue Data on Trifluralin in Sugarcane. (Unpublished study received on unknown date under 7G0595; CDL: 090765-A)
00105669	Elanco Products Co. (1967) The Results of Tests on the Amount of Residue Remaining, Including a Description of the Analytical Method Used: [Trifluralin]. (Compilation; unpublished study received Nov 28, 1967 under 8F0664; CDL:091163-A)
00105670	Eli Lilly and Co. (1967) Residue Data on Trifluralin in Watermelon, Celery, Mungbeans, and Guar Beans. (Unpublished study received Feb 14, 1968 under 8F0664; submitted by Elanco Products Co., Div. of Eli Lilly and Co., Indianapolis, IN; CDL:091164-A)
00105673	Eli Lilly and Co. (1967) Residue Data on Trifluralin in Sunflower Seed. (Compilation; unpublished study received Apr 5, 1968 under 8F0679; CDL:091186-A)

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00105674	Eli Lilly and Co. (1968) Supplemental Residue Data on Trifluralin in Sugarcane. (Compilation; unpublished study received Apr 6, 1968 under 8F0715; CDL:091238-A)
00105675	Elanco Products Co. (1968) [Trifluralin: Residues in Almonds and Other Nuts]. (Compilation; unpublished study received Dec 1, 1968 under 8F0721; CDL:091243-A)
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APPENDIX V

FORMS APPENDICES

OMB Approval No. 2000-0468

FIFRA SECTION 3(C)(2)(B) SUMMARY SHEET	EPA REGISTRATION NO.
PRODUCT NAME	
APPLICANT'S NAME	DATE GUIDANCE DOCUMENT ISSUED

With respect to the requirement to submit "generic" data imposed by the FIFRA section 3(C)(2)(B) notice contained in the referenced Guidance Document, I am responding in the following manner:

☐ 1. I will submit data in a timely manner to satisfy the following requirements. If the test procedures I will use deviate from (or are not specified in) the Registration Guidelines or the Protocols contained in the Reports of Expert Groups to the Chemicals Group, OECD Chemicals Testing Programme, I enclose the protocols that I will use:

☐ 2. I have entered into an agreement with one or more other registrants under FIFRA section 3(C)(2)(B)(ii) to satisfy the following data requirements. The tests, and any required protocols, will be submitted to EPA by:

NAME OF OTHER REGISTRANT

☐ 3. I enclose a completed "Certification of Attempt to Enter Into an Agreement with Other Registrants for Development of Data" with respect to the following data requirements:

☐ 4. I request that you amend my registration by deleting the following uses (this option is not available to applicants for new products):

☐ 5. I request voluntary cancellation of the registration of this product. (This option is not available to applicants for new products.)

REGISTRANT'S AUTHORIZED REPRESENTATIVE	SIGNATURE	DATE

EPA Form 8580-1 (10-82)

OMB Approval No. 2000-0468

CERTIFICATION OF ATTEMPT TO ENTER INTO AN AGREEMENT WITH OTHER REGISTRANTS FOR DEVELOPMENT OF DATA

qualify, certify ALL four items)

I am duly authorized to represent the following firm(s) who are subject to the requirements of a Notice under FIFRA Section 3(c)(2)(B) contained in a Guidance Document to submit data concerning the active ingredient:	GUIDANCE DOCUMENT DATE ACTIVE INGREDIENT

NAME OF FIRM	EPA COMPANY NUMBER

his firm or group of firms is referred to below as "my firm".)

My firm is willing to develop and submit the data as required by that Notice, if necessary. However, my firm would prefer to enter into an agreement with one or more other registrants to develop jointly, or to share in the cost of developing, the following required items or data:

My firm has offered in writing to enter into such an agreement. Copies of the offers are attached. That offer was irrevocable and included an offer to be bound by an arbitration decision under FIFRA Section 3(c)(2)(B)(iii) if final agreement on all terms could not be reached otherwise. This offer was made to the following firm(s) on the following date(s):

NAME OF FIRM	DATE OF OFFER

owever, none of those firm(s) accepted my offer.

. My firm requests that EPA not suspend the registration(s) of my firm's product(s), if any of the firms named in paragraph (3) above have agreed to submit the data listed in paragraph (2) above in accordance with the Notice. I understand EPA will promptly inform me whether my firm must submit data to avoid suspension of its registration(s) under FIFRA Section 3(c)(2)(B). (This statement does not apply to applicants for new products.) I give EPA permission to disclose this statement upon request.

YPED NAME	SIGNATURE	DATE

FORMULATOR'S EXEMPTION STATEMENT
(40 CFR 152.85)

EPA File Symbol/Reg. No. ______________ Product Name ____________________

Applicant's Name and Address ____

____

____

____

As an authorized representative of the applicant for registration of the product identified above, I hereby certify that:

(1) This product contains the active ingredient(s): ________________

____

____

(2) Each active ingredient listed in paragraph (1) is present solely as the result of the incorporation into the product (during formulation or packaging) of another product which contains that active ingredient, which is registered under FIFRA sec. 3, and which is purchased by us from another producer.

(3) Indicate by circling (A) or (B) below which paragraph applies:

(A) An accurate Confidential Statement of Formula (EPA Form 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

(B) The Confidential Statement of Formula dated __________ on file with the EPA is complete, current and accurate and contains the information required on the current CSF Form No. 8570-4. The registered source(s) of the active ingredient(s) listed in paragraph (1) is/are listed below:

Active ingredient	Source: Product name and Reg. No.

Signature ______________________________

Date ________________ Title ______________________________

EPA Form (April 1985)